HVAC SYSTEM UPGRADE
TRANSITION CENTER OF KANSAS CITY
KANSAS CITY, MISSOURI

OWNER:	STATE OF MISSOURI MICHAEL L. PARSON, GOVERNOR DEPARTMENT OF CORRECTIONS	DESIGNER:	INSITE GROUP, INC. Mechanical / Plumbing / Electrical
		PROJECT NUMBER:	C1904-01
PROJECT MANAGEMENT:	OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION	SITE NUMBER: FACILITY NUMBER:	7027 9327027001

DRAWING INDEX

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

MEP ENGINEER:
InSite Group
DEDICATION. DESIRE. INTEGRITY.
3560 NE Ralph Powell Rd., Ste. 9
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER
OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
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DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY:
CHECKED BY:
DESIGNED BY:

SHEET TITLE:

COVER SHEET

SHEET NUMBER:

G-001

1 OF 111 SHEETS
MARCH 21, 2023

ABBREVIATIONS

A.F.F.	ABOVE FINISH FLOOR	F.D.	FLOOR DRAIN	PARTN.	PARTITION
ACOUST.	ACOUSTICAL	F.E.	FIRE EXTINGUISHER	P.BD.	PARTICLE BOARD
ADJ.	ADJACENT, ADJUSTABLE	F.E.C.	FIRE EXTINGUISHER	PL.	PLATE, PROPERTY LINE
A.H.U.	AIR HANDLING UNIT	CABINET		PLAM	PLASTIC LAMINATE
ALT.	ALTERNATE	FIN.	FINISH	PNL.	PANEL
ALUM.	ALUMINUM	FLR.	FLOOR	P.S.F.	POUNDS PER SQUARE FOOT
∠	ANGLE	FLUOR.	FLUORESCENT	P.S.I.	POUNDS PER SQUARE INCH
ARCH.	ARCHITECTURAL	FND.	FOUNDATION	PWD.	PLYWOOD
@	AT	F.R.	FIRE-RATED		
		FT.	FOOT OR FEET	QTY.	QUANTITY
BD.	BOARD	FTG.	FOOTING		
BLDG.	BUILDING			R.	RADIUS, RISER
BLKG	BLOCKING	GA.	GAUGE	R.A.	RETURN AIR
BOT.	BOTTOM	GALV.	GALVANIZED	R.D.	ROOF DRAIN
B.O.	BOTTOM OF / BY OTHERS	G.C.	GENERAL CONTRACTOR	RE:	REFER TO, REFERENCE
BRG.	BEARING	GYP.	GYPSUM	REF.	REFRIDGERATOR
				REINF.	REINFORCING, REINFORCED
CAB.	CABINET	H.B.	HOSE BIBB	REQD.	REQUIRED
CB.	CHALKBOARD	HDWR.	HARDWARE	R.J.	RUSTICATION JOINT
C.J.	CONTROL JOINT	H.M.	HOLLOW METAL	RM./RMS.	ROOM, ROOMS
C.L.	CENTER LINE	HORIZ.	HORIZONTAL,	R.O.	ROUGH OPENING
CLG.	CEILING	HORIZONTALLY		R.T.U.	ROOF TOP UNIT
CLR.	CLEAR	HR.	HOUR		
CMU	CONCRETE MASONRY UNIT	HVAC	HEATING, VENT. & AIR COND.	S.A.	SUPPLY AIR
COL.	COLUMN			SCHED.	SCHEDULE
CONC.	CONCRETE	I.D.	INSIDE DIAMETER	S.F.	SQUARE FOOT
CONST.	CONSTRUCTION	INSUL.	INSULATION	SHT.	SHEET
CONT.	CONTINUOUS	INT.	INTERIOR	SIM.	SIMILAR
C.S.	CUP SINK			SPEC.	SPECIFICATION
CW	COLD WATER	JAN.	JANITOR	SQ.	SQUARE
		J.B.	JUNCTION BOX	S.S.	STAINLESS STEEL
DBL.	DOUBLE	JST.	JOIST	STD.	STANDARD
DEMO.	DEMOLISH/DEMOLITION	JT.	JOINT	STL.	STEEL
D.F.	DRINKING FOUNTAIN			STOR.	STORAGE
D.I.	DE-IONIZED WATER	LAM.	LAMINATE	STRUCT.	STRUCTURAL
DIA.	DIAMETER	LT.	LIGHT		
DIM.	DIMENSION	LTWT.	LIGHTWEIGHT	T.B.	TACKBOARD
DN.	DOWN	LWCMU	LIGHTWEIGHT C.M.U.	TEL.	TELEPHONE
DR.	DOOR			TEMP.	TEMPERED/TEMPERATURE
D.S.	DOWNSPOUT	MANUF.	MANUFACTURER	TLT.	TOILET
DET.	DETAIL	MAT.	MATERIAL	T.O.	TOP OF
DWG.	DRAWING	MAX.	MAXIMUM	TYP.	TYPICAL
		MECH.	MECHANICAL		
EA.	EACH	MIN.	MINIMUM	V.C.T.	VINYL COMPOSITION TILE
E.J.	EXPANSION JOINT	MISC.	MISCELLANEOUS	VERT.	VERTICAL
ELEC.	ELECTRICAL	M.O.	MASONRY OPENING	VEST.	VESTIBULE
EL.	ELEVATION	MTL.	METAL		
ELEV.	ELEVATOR			W.	WIDTH
EQUIP.	EQUIPMENT	N.	NORTH	W/	WITH
EXIST.	EXISTING	N.I.C.	NOT IN CONTRACT	W/O	WITHOUT
EXP.	EXPANSION	N.T.S.	NOT TO SCALE	WD.	WOOD
EXT.	EXTERIOR	NOM.	NOMINAL	WIN.	WINDOW
				WT.	WEIGHT
		O.C.	ON CENTER	W.W.F.	WELDED WIRE FABRIC
		O.D.	OVERFLOW DRAIN / OUTSIDE DIAMETER		
		OPNG.	OPENING		

GRAPHIC SYMBOLS

EXPANSION JOINT

CONTROL JOINT

FLOORING MATERIAL CHANGE

SPOT ELEVATION (FEET/INCHES)

DEMOLITION / NEW WORK PLAN NOTE

DETAIL SECTION:
SECTION NUM. (TOP)
SHEET NUM. (BOTTOM)

WALL SECTION:
SECTION NUM. (TOP)
SHEET NUM. (BOTTOM)

BUILDING SECTION:
SECTION NUM. (TOP)
SHEET NUM. (BOTTOM)

ENLARGED PLAN/
ENLARGED DETAIL:
SECTION NUM. (TOP)
SHEET NUM. (BOTTOM)

DOOR DESIGNATION:
REF. DOOR SCHEDULE

WINDOW / LOUVER DESIGNATION:
REF. WINDOW / LOUVER SCHEDULE(S)

ELEVATION MARKER:
ELEVATION NUMBER (OUTSIDE)
SHEET NUMBER (INSIDE)

CONTROL JOINT IN PLAN
(MASONRY & GYP. BD.)

PHOTOGRAPH LOCATION
DIRECTION & NUMBER

MATERIALS PLAN/SECTION

CONCRETE MASONRY UNIT – PLAN

METAL / STEEL STUD

6" METAL / STEEL STUD – PLAN

STUD WALL WITH SPECIAL BLOCKING – PLAN

WOOD / FINISH MAT'L

WOOD STUD – PLAN

BATT INSULATION

RIGID INSULATION / SPRAY FOAM

GYPSUM BOARD

GRANULAR FILL

WOOD FRAMING

CONCRETE

PLYWOOD

EARTH

GROUT

STEEL

BRICK

GENERAL NOTES

1. GENERAL CONTRACTOR AND SUBCONTRACTORS ARE RESPONSIBLE FOR OBTAINING ANY AND ALL REQUIRED PERMITS. ALL WORK IS TO CONFORM TO ALL FEDERAL, STATE AND LOCAL CODES.
2. GENERAL CONTRACTOR SHALL VERIFY EXISTING CONDITIONS. ARCHITECT SHALL BE NOTIFIED IMMEDIATELY OF ANY OMISSIONS, VARIATIONS OR REQUIRED MODIFICATIONS TO THE SCOPE OF WORK.
3. ALTHOUGH NOT EXPECTED, EXISTING BUILDINGS MAY CONTAIN HAZARDOUS MATERIALS INCLUDING BUT NOT LIMITED TO LEAD-BASED PAINT AND/OR ASBESTOS. ANY MATERIAL THAT IS SUSPECT SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND SHALL BE TESTED BY A LICENSED ENVIRONMENTAL ENGINEER PRIOR TO DISRUPTION. ALL COSTS ASSOCIATED WITH TESTING AND ANY NECESSARY REMEDIATION OR ABATEMENT SHALL BE PAID FOR BY THE OWNER OUTSIDE OF THIS SCOPE OF WORK FOR THIS PROJECT.
4. ALL DOOR HARDWARE SHALL BE ADA COMPLIANT.
5. ALL DIMENSIONS ARE TO OUTSIDE FACE OF STEEL STRUCTURE, FACE OF CONCRETE MASONRY OR CONCRETE AND TO FACE OF STEEL STUD, UNLESS NOTED OTHERWISE.
6. HORIZONTAL MASONRY DIMENSIONS FROM OUTSIDE TO OUTSIDE CORNERS ARE NOMINAL. WHEN DIMENSION 2'-8" OR LESS, CONSTRUCT ONE JOINT LESS THAN DIMENSION SHOWN.
7. FINISH IS REQUIRED BEHIND SURFACE-MOUNTED CABINETS, SHELVES, WALL ACCESSORIES, ETC.
8. GENERAL CONTRACTOR TO PROVIDE 4" HIGH HOUSEKEEPING PADS UNDER ALL MECHANICAL EQUIPMENT SUCH AS AIR COMPRESSORS. VERIFY WITH MECHANICAL DRAWINGS.
9. GENERAL CONTRACTOR TO PROVIDE LINTELS (REF. STRUCTURAL NOTES) FOR ALL OPENINGS OF MASONRY WALL FOR MECHANICAL PENETRATIONS, AND OTHER LOCATIONS AS REQUIRED.
10. ALL GYPSUM BOARD SHALL BE 5/8" TYPE 'X' FIRE RESISTANT GYPSUM BOARD WITH MOLD-RESISTANCE UNLESS OTHERWISE NOTED.
11. ALL NON-LOAD BEARING PARTITIONS (CMU AND METAL STUD) THAT EXTEND FROM FLOOR TO THE UNDERSIDE OF STRUCTURE ABOVE SHALL TERMINATE AT THE UNDERSIDE OF STRUCTURE ABOVE WITH DEFECTION TRACK (METAL STUDS) OR STABILIZING ANGLES (CMU) TO ALLOW STRUCTURAL DEFLECTION WITHOUT TRANSFERRING THE LOAD TO THE PARTITION UNDERNEATH.
12. ALL STAINLESS STEEL SHALL BE TYPE 304 WITH #4 FINISH UNLESS NOTED OTHERWISE.
13. NEW EQUIPMENT FOR MECHANICAL ROOMS 230 & 231 THAT CANNOT BE BROUGHT THROUGH THE BUILDING'S DOORWAYS AND / OR CIRCULATION SHALL BE LOWERED THROUGH THE ROOF. RE: A103 FOR ROOF AREAS TO BE DISASSEMBLED AND REASSEMBLED AFTER OPENING USE IS COMPLETE. OPENINGS SHALL BE SECURED AND DRIED IN AT THE COMPLETION OF EACH WORKING DAY AND SHALL BE PROTECTED FROM MOISTURE INTRUSION WHEN THREAT OCCURS. EQUIPMENT HAS BEEN SIZED TO FIT BETWEEN ROOF PURLINS. ONLY ROOFING PANELS, BLANKET INSULATION, & VAPOR BARRIER SHALL BE REMOVED TO CREATE OPENINGS. REPLACE ALL SYSTEMS TO ORIGINAL CONDITION. ROOFING METAL PANELS MR-24 (MANUF. BY BUTLER MANUF. CO.) SHALL BE REMOVED AS NECESSARY FOR THE APPROPRIATE OPENING SIZE. NEW MR-24 PANELS SHALL BE INSTALLED. THE PANELS AND ALL EXPOSED ACCESSORIES, SUCH AS PANEL JOINT CAPS, SHALL BE COLORED TO MATCH EXISTING "COOL OCEAN BLUE".
14. CEILING ACCESS PANELS SHALL BE EQUIPPED WITH THREE CAM LOCKS (ONE PER NON-HINGE SIDE). EACH LATCH SHALL BE SPANNER-HEAD OR OTHER TYPE OF TAMPER-PROOF LATCH.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

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The beginning of a new way of thinking
MO COA 2013041390
Daren T. Carney, Architect: A-2000150402 PROJECT NUMBER: 19029

KEY PLAN:

NORTH

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

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CAD DWG FILE:
DRAWN BY:
CHECKED BY: ALINEA
DESIGNED BY: DTC

SHEET TITLE:

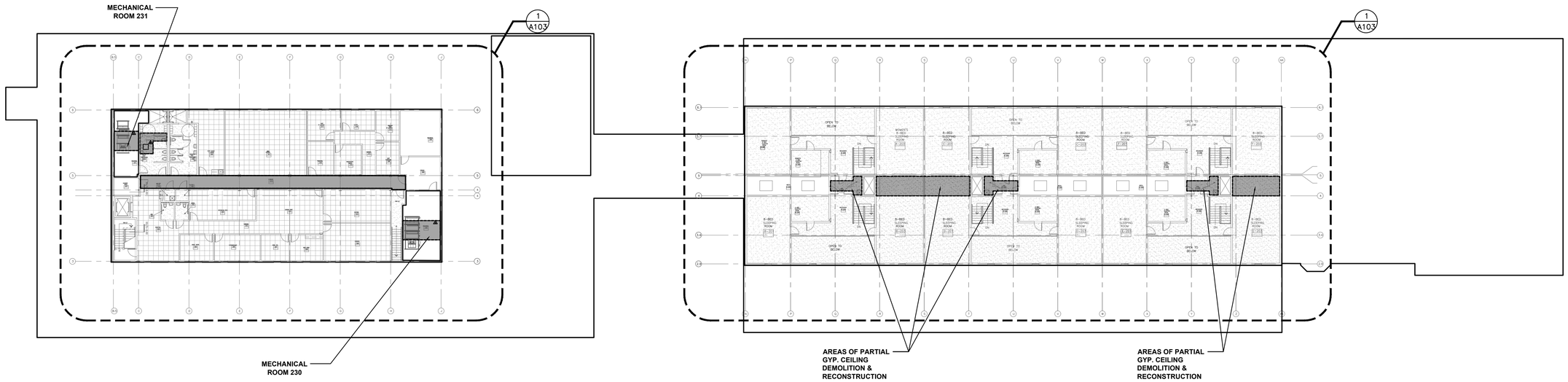
ARCHITECTURAL
GENERAL NOTES &
PROJECT INFO.

SHEET NUMBER:

A001

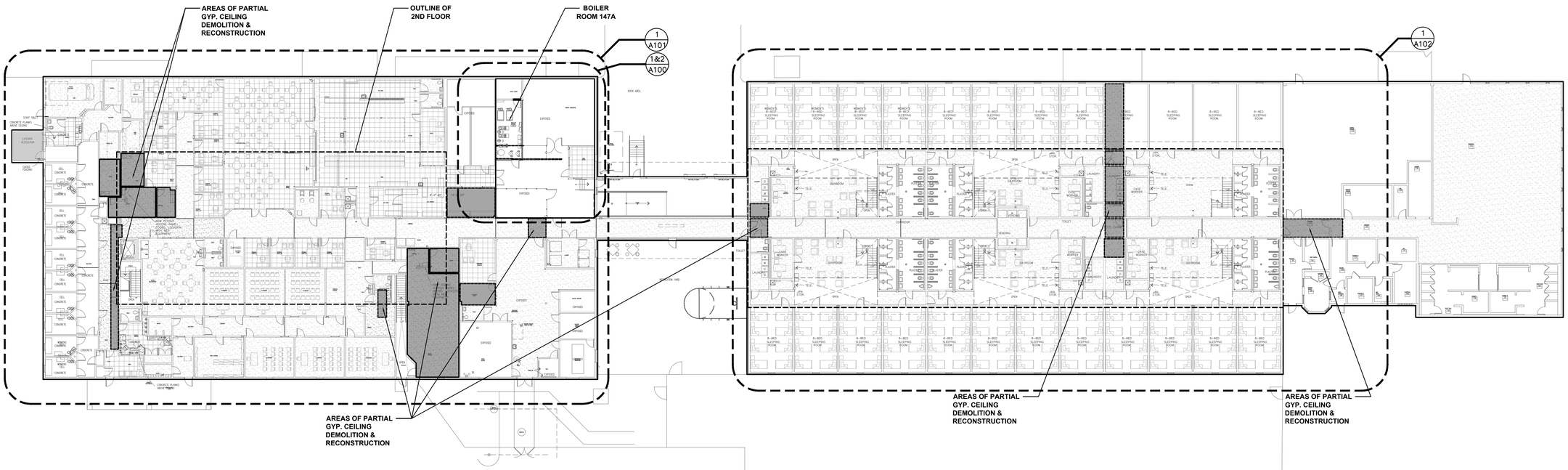
2 OF 111 SHEETS
MARCH 21, 2023

1 GENERAL NOTES & PROJECT INFORMATION
N.T.S.



2 NEW WORK AREAS - SECOND FLOOR PLAN
N.T.S.

PLAN NORTH



1 NEW WORK AREAS - FIRST FLOOR PLAN
N.T.S.

PLAN NORTH

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MICHAEL L. PARSON, GOVERNOR

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DESIGNED BY: DTC

SHEET TITLE:

ARCHITECTURAL PROJECT AREA LOCATION MAPS

SHEET NUMBER:

A002

3 OF 111 SHEETS
MARCH 21, 2023

GENERAL NOTES

1. CONTRACTOR TO PROTECT ALL EXISTING BUILDING ELEMENTS THAT ARE TO REMAIN. PATCH AND REPAIR ANY ITEMS OR AREAS THAT ARE DAMAGED AND/OR EXPOSED AS A RESULT OF THE SCHEDULED DEMOLITION.

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PLAN NOTES:

1. MODIFY EXISTING STEEL CAGE SYSTEM AS REQUIRED FOR NEW CONSTRUCTION. RE: NEW WORK.
2. MODIFY EXISTING GALV. FENCE SYSTEM AS REQUIRED FOR NEW CONSTRUCTION. RE: NEW WORK.
3. REMOVE EXISTING CORNER GUARD. PREP WALL FOR EXTENSION PER NEW WORK.
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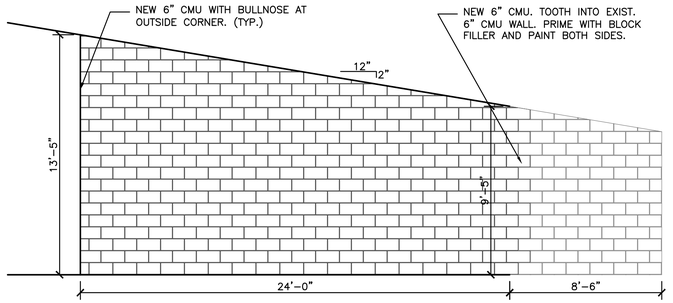
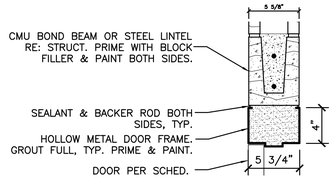
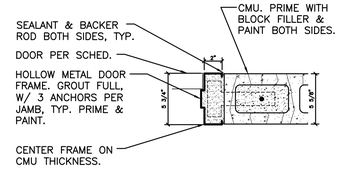


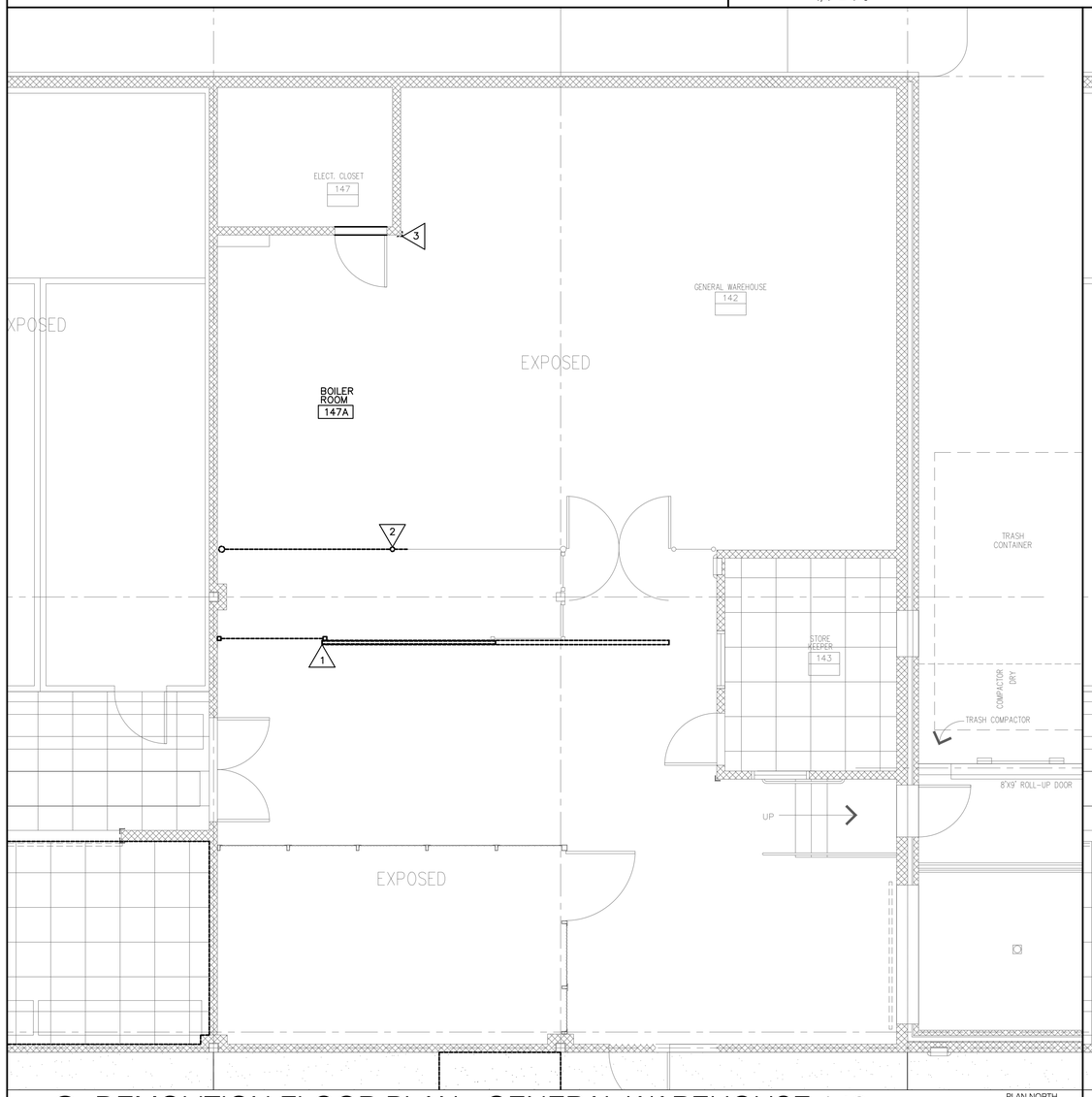
5 INT. ELEVATION
1/4" = 1'-0"



4 DOOR HEAD DETAIL
1 1/2" = 1'-0"

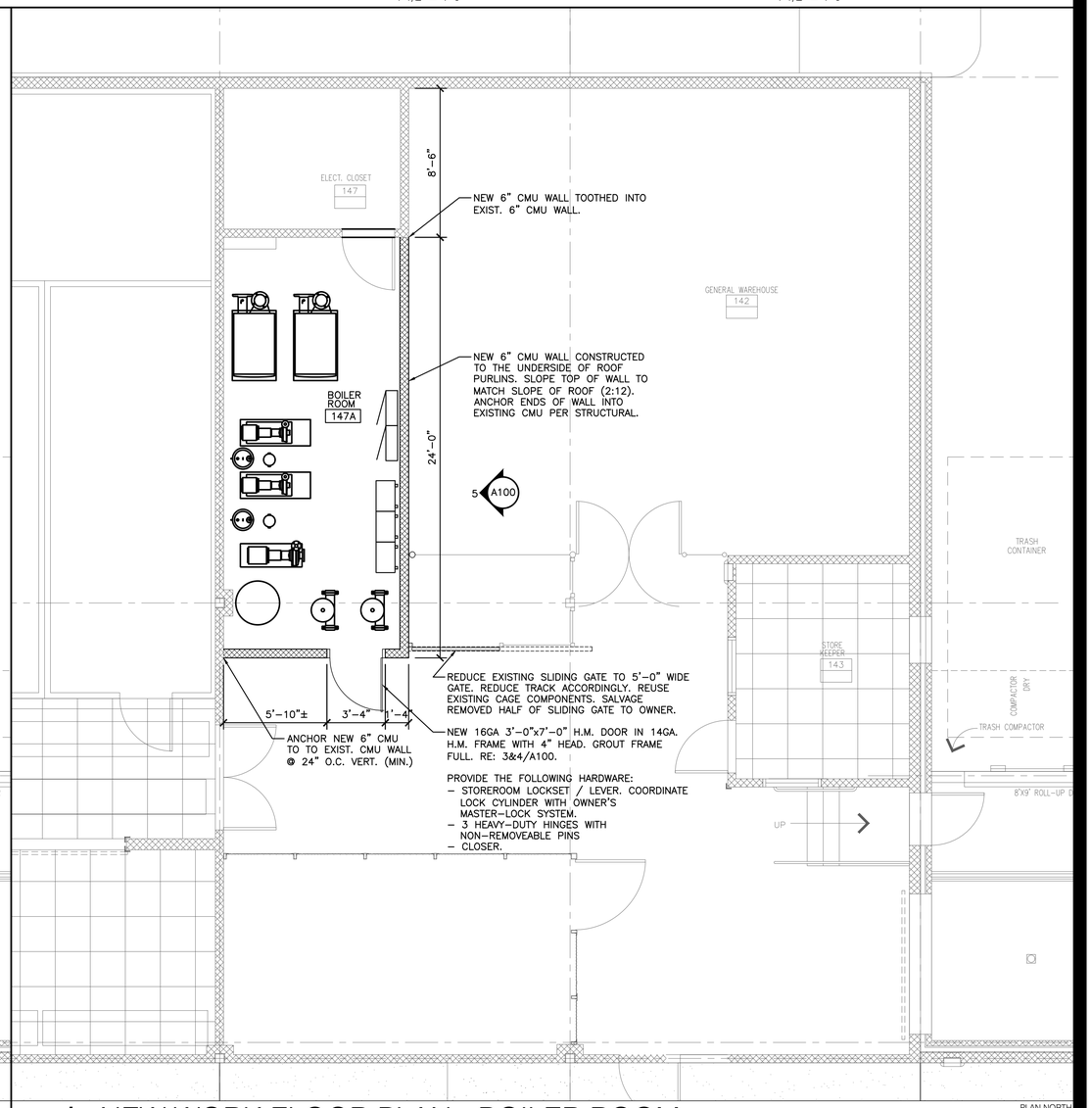


3 DOOR JAMB DETAIL
1 1/2" = 1'-0"



2 DEMOLITION FLOOR PLAN - GENERAL WAREHOUSE 142
1/4" = 1'-0"

PLAN NORTH



1 NEW WORK FLOOR PLAN - BOILER ROOM
1/4" = 1'-0"

PLAN NORTH

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CAD DWG FILE:
DRAWN BY:
CHECKED BY: ALINEA
DESIGNED BY: DTC

SHEET TITLE:

ARCHITECTURAL FLOOR PLANS - FIRST FLOOR

SHEET NUMBER:

A100

4 OF 111 SHEETS
MARCH 21, 2023

GENERAL NOTES

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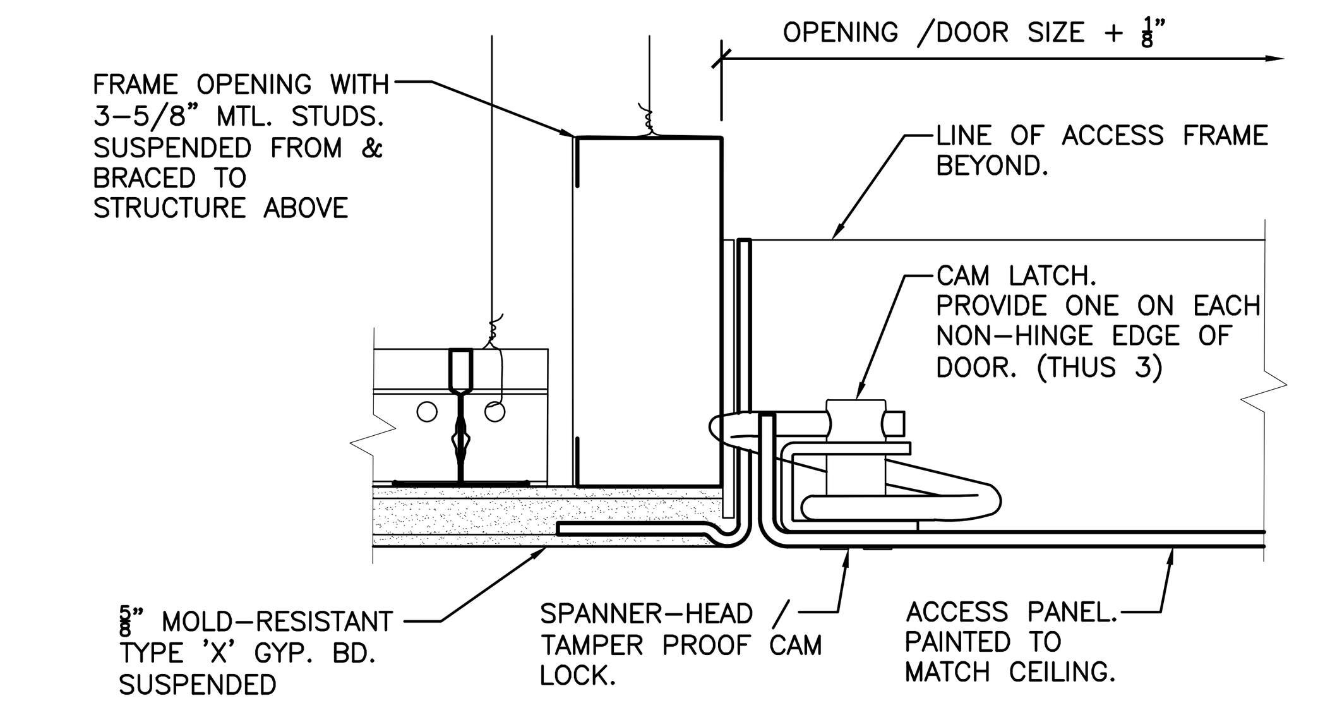
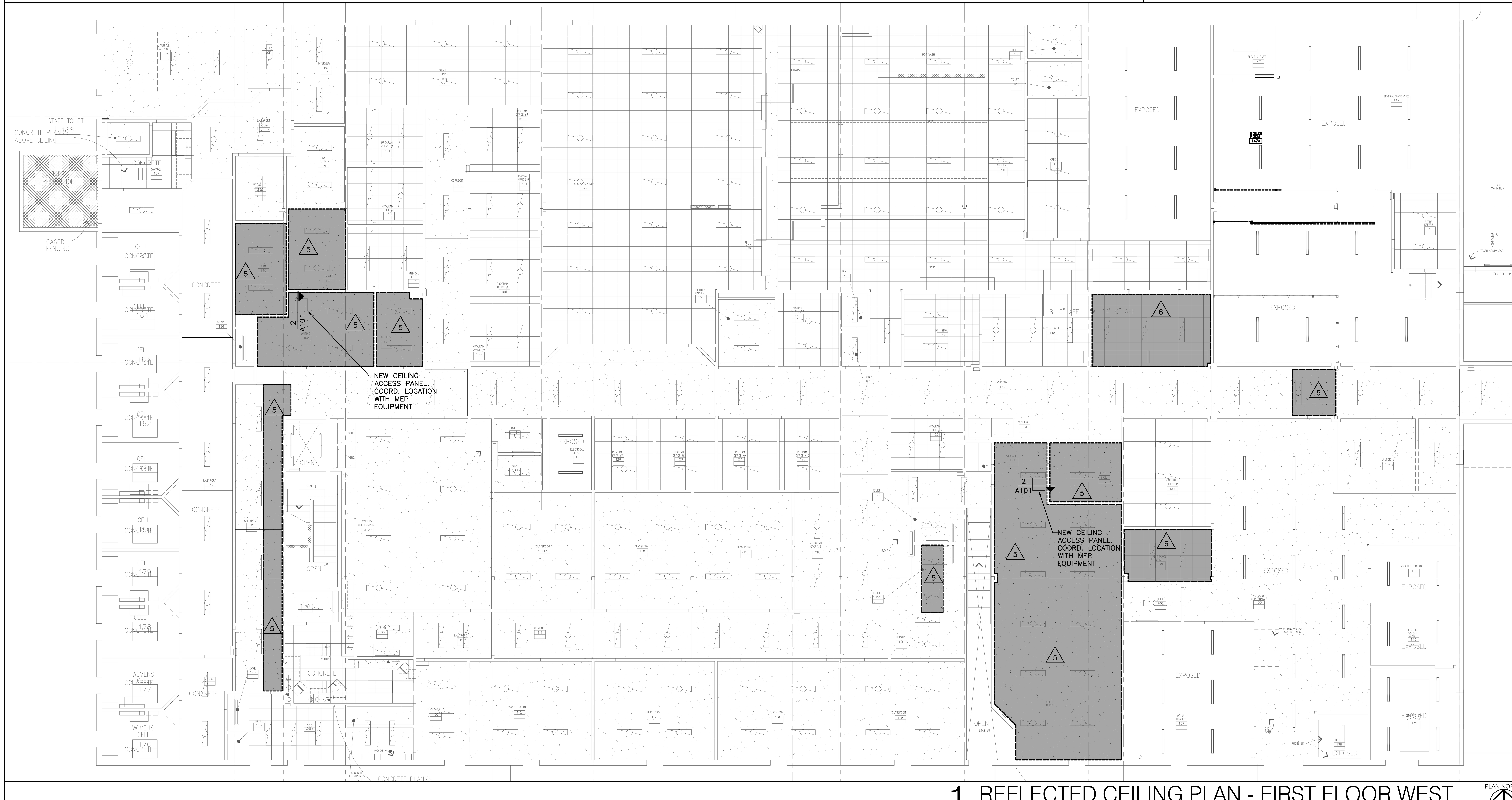


2 CEILING ACCESS PANEL DETAIL
6" = 1'-0"



1 REFLECTED CEILING PLAN - FIRST FLOOR WEST
1/8" = 1'-0"

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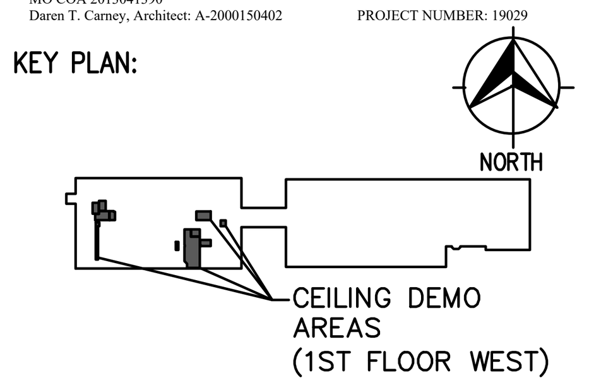

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CHECKED BY: ALINEA
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SHEET TITLE:
ARCHITECTURAL CEILING PLAN - FIRST FLOOR - WEST

SHEET NUMBER:
A101

5 OF 111 SHEETS
MARCH 21, 2023

GENERAL NOTES

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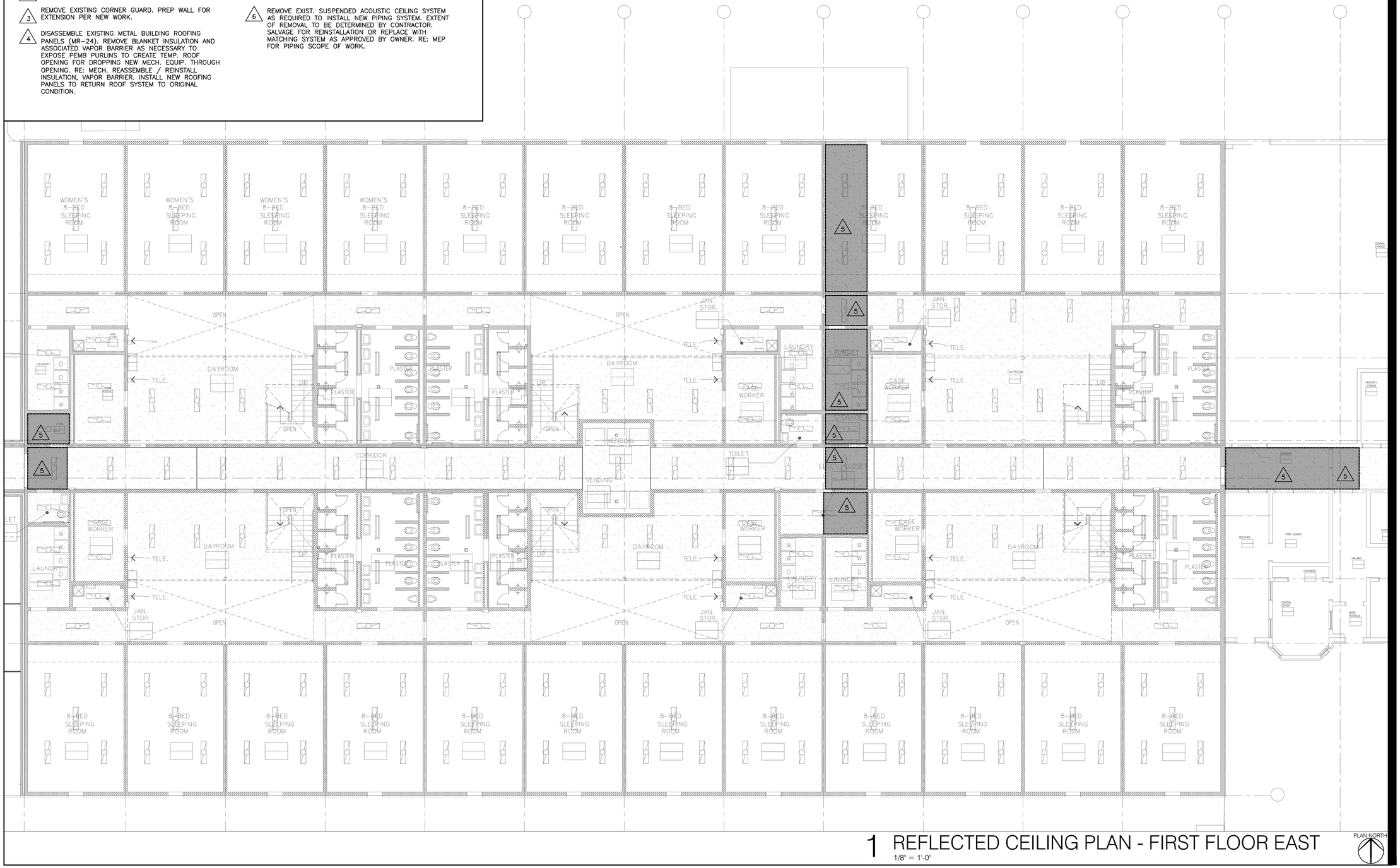

1 REFLECTED CEILING PLAN - FIRST FLOOR EAST
1/8" = 1'-0"

PLAN NORTH

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
DARIEN TODD CARNEY
NUMBER A-2000150402
3-21-2023
REGISTERED ARCHITECT

MEP ENGINEER:

InSite Group
DEDICATION. DESIRE. INTEGRITY.
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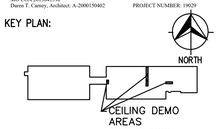
www.alinea-arch.com
The beginning of a new way of thinking

MO COA 2013041390
Darren T. Carney, Architect: A-2000150402 PROJECT NUMBER: 19029

KEY PLAN:



OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY:
CHECKED BY: ALINEA
DESIGNED BY: DTC

SHEET TITLE:

ARCHITECTURAL CEILING PLANS - FIRST FLOOR - EAST

SHEET NUMBER:

A102

6 OF 111 SHEETS
MARCH 21, 2023

GENERAL NOTES

1. CONTRACTOR TO PROTECT ALL EXISTING BUILDING ELEMENTS THAT ARE TO REMAIN. PATCH AND REPAIR ANY ITEMS OR AREAS THAT ARE DAMAGED AND/OR EXPOSED AS A RESULT OF THE SCHEDULED DEMOLITION.

2. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE WITH THE OWNER ANY AND ALL INTERRUPTIONS IN ANY SERVICE TO THE BUILDING AS REQUIRED BY THE SCOPE OF WORK. THESE INTERRUPTIONS SHALL NOT INTERFERE WITH THE DAILY OPERATIONS OF THE OWNER.

PLAN NOTES:

1. MODIFY EXISTING STEEL CAGE SYSTEM AS REQUIRED FOR NEW CONSTRUCTION. RE: NEW WORK.
2. MODIFY EXISTING GALV. FENCE SYSTEM AS REQUIRED FOR NEW CONSTRUCTION. RE: NEW WORK.
3. REMOVE EXISTING CORNER GUARD. PREP WALL FOR EXTENSION PER NEW WORK.
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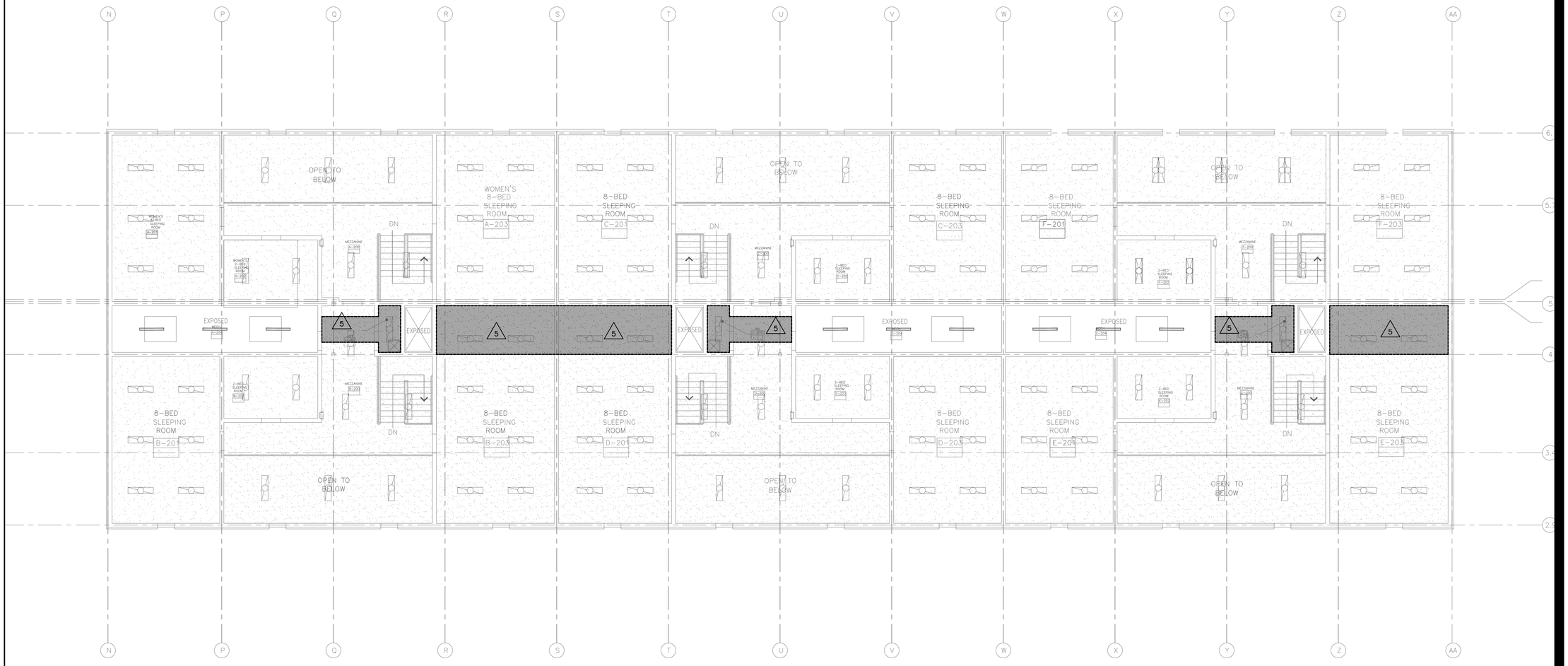

1 REFLECTED CEILING PLAN - SECOND FLOOR EAST

1/8" = 1'-0"

PLAN NORTH

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
DARIEN TODD CARNEY
NUMBER A-2000150402
3-21-2023
REGISTERED ARCHITECT

MEP ENGINEER:

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DEDICATION. DESIRE. INTEGRITY.
3540 NE Ralph Powell Rd., Ste. B
Lee's Summit, MO 64064
Ph: (816) 228-3377

ARCHITECT:

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Olathe, Kansas 66062
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The beginning of a new way of thinking

MO COA 2013041390
Darien T. Carney, Architect: A-2000150402 PROJECT NUMBER: 19029

KEY PLAN:

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

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TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
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DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY:
CHECKED BY: ALINEA
DESIGNED BY: DTC

SHEET TITLE:

ARCHITECTURAL CEILING PLANS - SECOND FLOOR EAST

SHEET NUMBER:

A103

7 OF 111 SHEETS
MARCH 21, 2023

GENERAL NOTES

1. CONTRACTOR TO PROTECT ALL EXISTING BUILDING ELEMENTS THAT ARE TO REMAIN. PATCH AND REPAIR ANY ITEMS OR AREAS THAT ARE DAMAGED AND/OR EXPOSED AS A RESULT OF THE SCHEDULED DEMOLITION.

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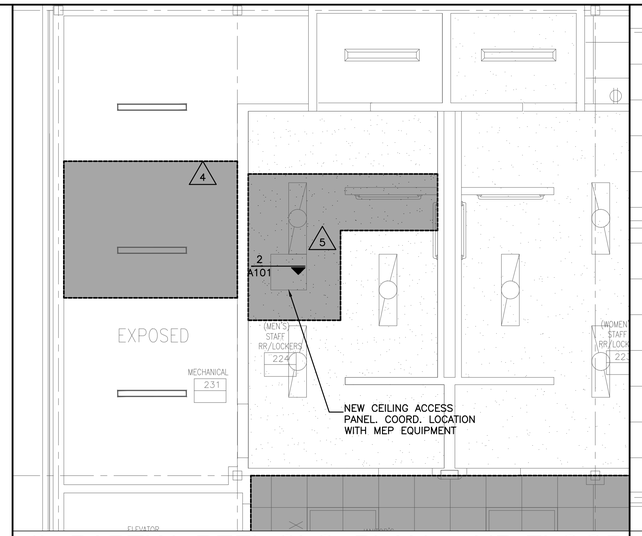
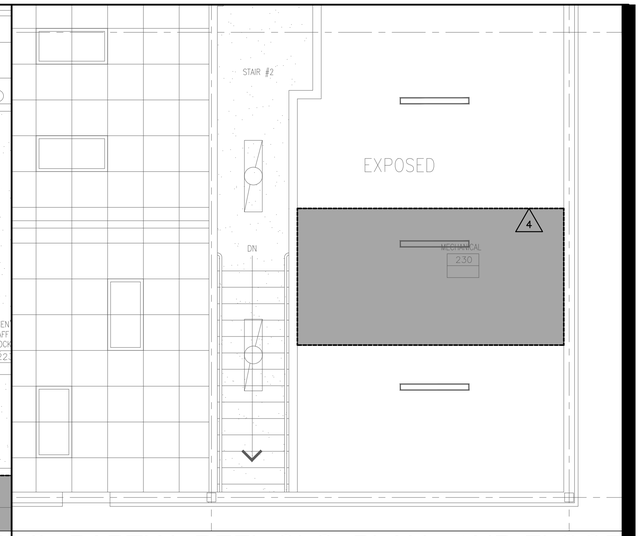
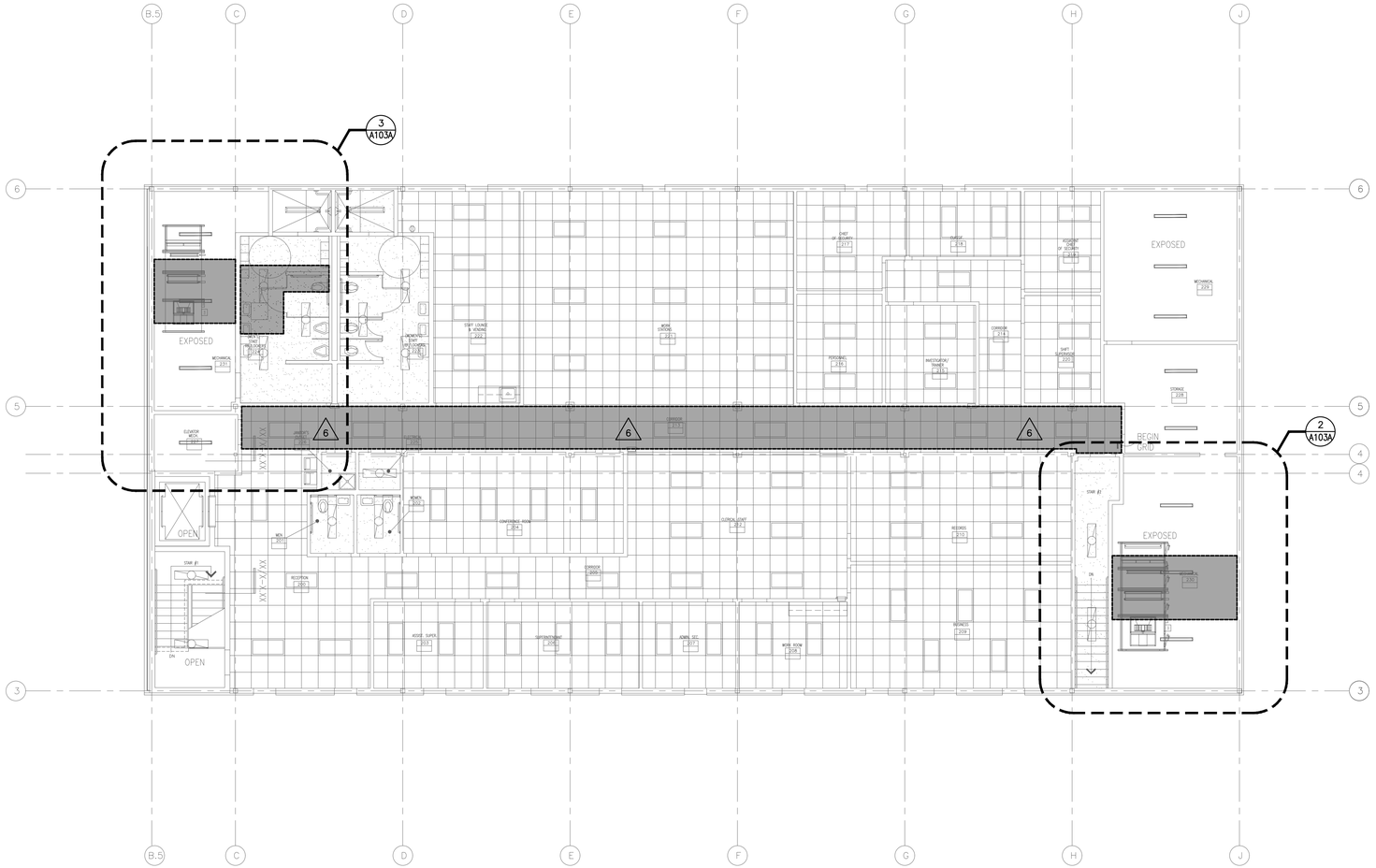


3 PARTIAL REFL CLG. PLAN - 2ND FLOOR
1/4" = 1'-0"



2 PARTIAL REFL CLG. PLAN - 2ND FLOOR
1/4" = 1'-0"



1 REFLECTED CEILING PLAN - SECOND FLOOR WEST
1/8" = 1'-0"

PLAN NORTH

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
DARIEN TODD CARNEY
NUMBER A-2000150402
3-21-2023
REGISTERED ARCHITECT

MEP ENGINEER:

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The beginning of a new way of thinking

MO COA 2013041390
Darien T. Carney, Architect: A-2000150402
PROJECT NUMBER: 19029

KEY PLAN:

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
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ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY:
CHECKED BY: ALINEA
DESIGNED BY: DTC

SHEET TITLE:

ARCHITECTURAL CEILING PLANS - SECOND FLOOR WEST

SHEET NUMBER:

A103A

8 OF 111 SHEETS
MARCH 21, 2023

GENERAL NOTES

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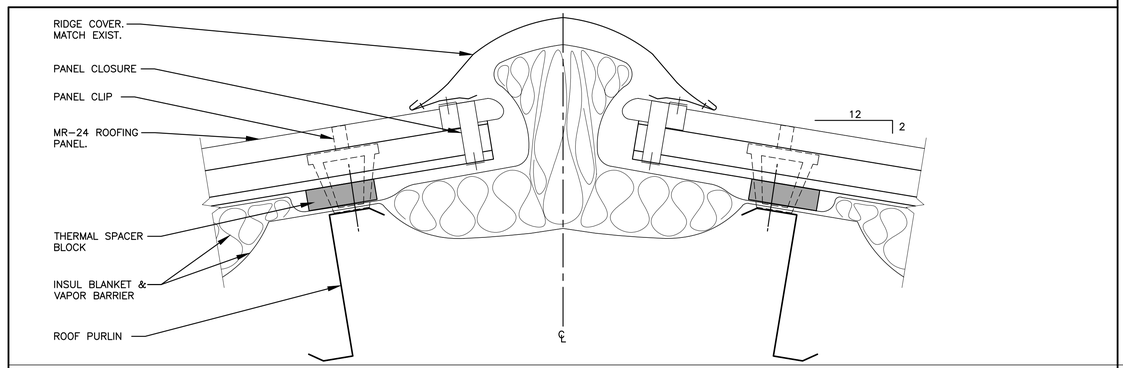
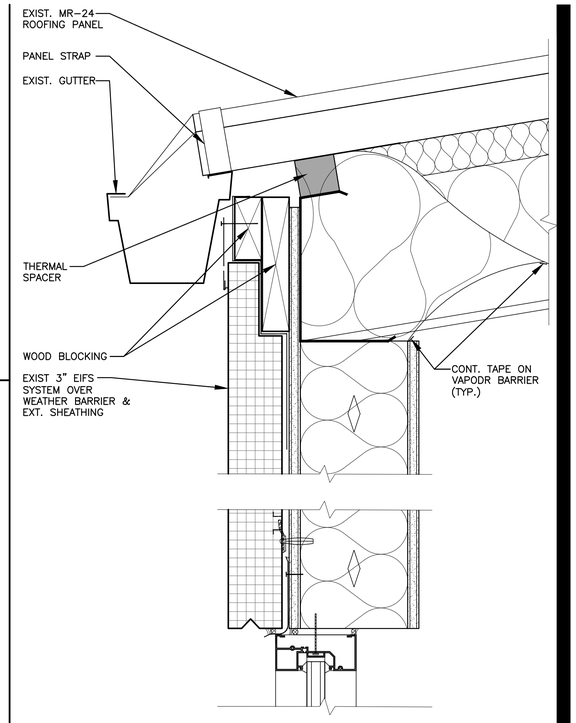


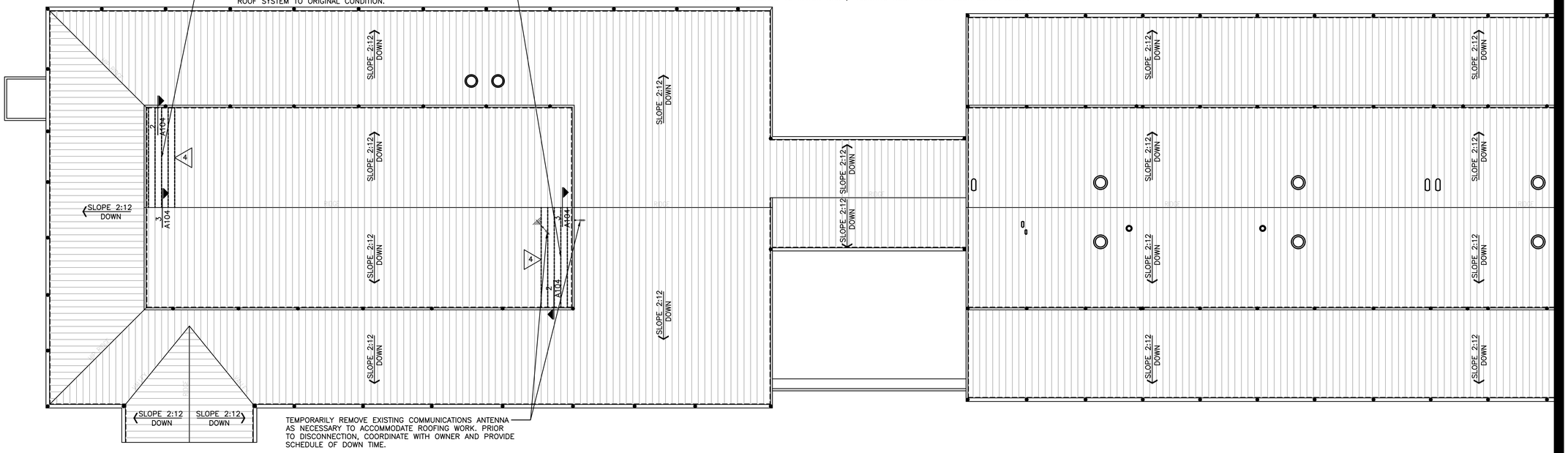
3 EXIST. ROOF RIDGE DETAIL
3" = 1'-0"



2 EXIST. ROOF EAVE DETAIL
3" = 1'-0"

REMOVE EXISTING MR-24 ROOFING PANELS (MANUF. BY BUTLER MANUF. CO.), INSULATION & VAPOR BARRIER IN AREAS SHOWN AS NECESSARY TO CREATE TEMPORARY ROOF OPENING TO LOWER NEW HVAC EQUIPMENT THROUGH THE ROOF. THE LARGEST PIECE OF EQUIPMENT IS 50"Lx64"W (VERIFY WITH HVAC SUPPLIER) PURLINS ARE INDICATED TO BE 5'-0" O.C. VAPOR BARRIER & BLANKET INSULATION IS VISIBLE FROM THE INTERIOR. UPON COMPLETION, REINSTALL VAPOR BARRIER & BLANKET INSULATION AND REINSTALL / INSTALL NEW ROOFING PANELS TO MATCH (KYNAR "COOL OCEAN BLUE"). RETURNING ROOF SYSTEM TO ORIGINAL CONDITION.

GENERAL NOTE:
NEW EQUIPMENT FOR MECHANICAL ROOMS 230 & 231 THAT CANNOT BE BROUGHT THROUGH THE BUILDING'S DOORWAYS AND / OR CIRCULATION SHALL BE LOWERED THROUGH THE ROOF. ROOF AREAS TO BE DISASSEMBLED AND REASSEMBLED AFTER OPENING USE IS COMPLETE. OPENINGS SHALL BE SECURED AND DRIED IN AT THE COMLETETION OF EACH WORKING DAY AND SHALL BE PROTECTED FROM MOISTURE INTRUSION WHEN THREAT OCCURS. EQUIPMENT HAS BEEN SIZED TO FIT BETWEEN ROOF PURLINS. ONLY ROOFING PANELS, BLANKET INSULATION, & VAPOR BARRIER SHALL BE REMOVED TO CREATE OPENINGS. REPLACE ALL SYSTEMS TO ORIGINAL CONDITION. ROOFING PANELS SHALL BE REPLACED WITH NEW MR-24 ROOF PANELS TO MATCH EXISTING. COVER / CAPS AT JOINT BETWEEN EXISTING AND NEW PANELS SHALL BE COLORED TO MATCH NEW / EXISTING ROOF PANELS "COOL OCEAN BLUE".



1 ROOF PLAN - PARTIAL
1/16" = 1'-0"

PLAN NORTH

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
DARIEN TODD CARNEY
NUMBER A-2000150402
3-21-2023
REGISTERED ARCHITECT

MEP ENGINEER:
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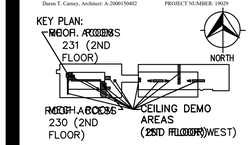

OFFICE OF ADMINISTRATION
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DEPARTMENT OF CORRECTIONS

PROJECT TITLE:
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TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
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CAD DWG FILE:
DRAWN BY:
CHECKED BY: ALINEA
DESIGNED BY: DTC

SHEET TITLE:
ARCHITECTURAL ROOF PLAN - PARTIAL

SHEET NUMBER:
A104

9 OF 111 SHEETS
MARCH 21, 2023

1. BUILDING CODE: - 2018 INTERNATIONAL BUILDING CODE WITH LOCAL AMENDMENTS

2. DESIGN LOADS:

A. FLOOR LIVE LOADS

a.	FLOORS (NON-REDUCED/REDUCED)	50 PSF
b.	CORRIDORS, RAMPS, STAIRS AND EXIT WAYS	100 PSF
c.	PARTITIONS	15 PSF
d.	MECHANICAL ROOM	50 PSF

B. ROOF LIVE LOAD 20 PSF

C. ROOF SNOW LOAD

a.	GROUND SNOW LOAD, P_g	20 PSF
b.	FLAT ROOF SNOW LOAD, P_f	20 PSF
1	SLOPED ROOF, P_s	17 PSF
c.	SNOW EXPOSURE FACTOR, C_e	1.0
d.	RISK CATEGORY	II
e.	SNOW LOAD IMPORTANCE FACTOR, I	1.0
f.	THERMAL FACTOR, C_t	
1	HEATED STRUCTURE	1.0
2	UNHEATED STRUCTURE	1.2
g.	DRIFTING	PER CODE

D. RAIN LOADS

a.	RAIN INTENSITY	
1.	i (15 MINUTES)	7.59 INCH/HR
2.	i (60 MINUTES)	3.66 INCH/HR
b.	RAIN LOAD	N/A (NO WATER RETENTION)

E. WIND LOADS

a.	BASIC WIND SPEED (3 SECOND GUST)	
1	V(ULTIMATE)	110 MPH
2	V(SERVICE)	85 MPH
b.	RISK CATEGORY	II
c.	WIND EXPOSURE	C
d.	INTERNAL PRESSURE COEFFICIENT	+/- 0.18
e.	COMPONENT & CLADDING PRESSURE	SEE TABLE 7/S002
f.	BASIC WIND-FORCE-RSISITING SYSTEM	STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC

F. SEISMIC LOADS

a.	RISK CATEGORY	II
b.	SPECTRAL ACCELERATION	Ss = 0.095g, S1 = 0.069g
c.	SEISMIC IMPORTANCE FACTOR, I	1.0
d.	SPECTRAL RESPONSE COEFFICIENTS	
1	SDS	0.101
2	SD1	0.110
e.	SITE CLASS	D
f.	SEISMIC DESIGN CATEGORY	B
g.	BASIC SEISMIC-FORCE-RESISTING SYSTEM	STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC
h.	RESPONSE MODIFICATION FACTOR, R	3
i.	SEISMIC RESPONSE COEFFICIENT, Cs	0.04
j.	DESIGN BASE SHEAR	0.037W
k.	SEISMIC BASE SHEAR	NA*

*RENOVATIONS DO NOT IMPACT FORCES IN LATERAL FORCE RESISTING SYSTEMS BY MORE THAN 10%

l.	ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE

G. DEAD LOADS

a.	STRUCTURE	ACTUAL WEIGHT

H. THE STRUCTURAL SYSTEMS SHOWN ON THESE DOCUMENTS HAVE BEEN DESIGNED FOR THE FINAL, IN PLACE USAGE OF THE STRUCTURE BASED ON THE INTENDED OCCUPANCY AND CODE REQUIREMENTS. WHILE GENERAL CONSTRUCTABILITY HAS BEEN CONSIDERED, THE STRUCTURAL SYSTEMS HAVE NOT BEEN DESIGNED TO ACCOMMODATE SPECIFIC CONSTRUCTION MEANS AND METHODS THAT MIGHT BE UTILIZED BY THE CONTRACTOR.

3. STATEMENT OF SPECIAL INSPECTIONS

A. THIS STATEMENT OF SPECIAL INSPECTIONS IS IN ACCORDANCE WITH 1704.3 OF THE 2018 IBC. THE INTENT OF THIS SECTION IS THAT ALL SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 17 OF THE 2018 IBC UNLESS SPECIFICALLY NOTED OTHERWISE. ADDITIONAL SPECIAL INSPECTIONS MAY BE REQUIRED BY LOCAL CODE OR BUILDING OFFICIAL, AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ANY ADDITIONAL REQUIRMENTS ABOVE AND BEYOND THE CODE REQUIRED SPECIAL INSPECTION INDICATED BELOW.

B. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH THE BUILDING CODE.

a. REINFORCED MASONRY CONSTRUCTION - LEVEL B INSPECTION
b. CONCRETE AND MASONRY GROUT DESIGN MIX
c. PLACING OF CONCRETE AND REINFORCING STEEL
d. BOLTS AND ANCHORS EMBEDDED IN CONCRETE AND MASONRY
e. STRUCTURAL STEEL FABRICATIONS
f. STRUCTURAL STEEL BOLTING AND WELDING
g. INSPECTION OF ROOF AND FLOOR DECK ATTACHMENT
h. IN-SITU STRUCTURAL FRAMING
i. POST-INSTALLED ANCHORS IN MASONRY AND CONCRETE
j. IN-SITU SOILS, EXCAVATIONS, FILLING AND COMPACTION

C. THE OWNER IS RESPONSIBLE FOR EMPLOYING ONE OR MORE SPECIAL INSPECTORS TO PERFORM INSPECTIONS DURING CONSTRUCTION, BASED ON REQUIREMENTS OF ONE OR MORE DESIGN PROFESSIONALS.

D. THE CONTRACTOR SHALL REQUEST SPECIAL INSPECTION OF THE ITEMS LISTED ABOVE PRIOR TO THOSE ITEMS BECOMING INACCESSIBLE AND UNOBSERVABLE DUE TO PROGRESSION OF THE WORK. THE CONTRACTOR SHALL PROVIDE SAFE ACCESS TO THE JOB SITE AND ITEMS TO BE INSPECTED. SAFE ACCESS INCLUDES BUT IS NOT LIMITED TO LADDERS, SCAFFOLDING AND/OR CONTRACTOR OPERATED LIFTS AS REQUIRED FOR SITE OBSERVATION.

E. SPECIAL INSPECTOR SHALL PROVIDE BI-WEEKLY SPECIAL INSPECTION REPORTS AND SHALL DISTRIBUTE THESE REPORTS TO THE BUILDING OFFICIAL, OWNER, CONTRACTOR, ARCHITECT, STRUCTURAL ENGINEER OF RECORD, AND MECHANICAL/ELECTRICAL/PLUMBING ENGINEER OF RECORD. SPECIAL INSPECTION REPORTING SHALL BE IN ACCORDANCE WITH SECTION 1704.2.4 OF THE 2018 IBC.

F. ALL DISCREPANCIES NOTED DURING INSPECTIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR. IF LEFT UNCORRECTED, THESE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE APPROPRIATE DESIGN PROFESSIONALS AND/OR BUILDING OFFICIAL. THE INSPECTOR IS NOT AUTHORIZED TO APPROVE DEVIATIONS FROM THE CONTRACT DRAWINGS.

4. STRUCTURAL ENGINEER SITE OBSERVATIONS:

A. THE CONTRACT STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCES.

B. THE ENGINEER SHALL NOT HAVE CONTROL NOR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSION OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

C. PERIODIC SITE OBSERVATION BY FIELD REPRESENTATIVES OF PMA ENGINEERING IS SOLELY FOR THE PURPOSE OF DETERMINING IF THE WORK OF THE CONTRACTOR IS PROCEEDING IN GENERAL ACCORDANCE WITH THE STRUCTURAL CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO GUARD THE OWNER AGAINST DEFECTS OR DEFICIENCIES IN THE WORK OF THE CONTRACTOR.

5. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS PRIOR TO FABRICATION.

6. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS FOR OTHER PERTINENT INFORMATION RELATED TO THE STRUCTURAL WORK AND COORDINATE AS REQUIRED. THESE STRUCTURAL DRAWINGS ARE INTENDED TO BE UTILIZED AS A COMPLETE SET OF DOCUMENTS THAT REPRESENT THE BUILDING'S STRUCTURAL SYSTEMS. NO SINGLE SHEET OR SERIES OF SHEETS IS INTENDED TO "STAND ALONE." THESE STRUCTURAL DRAWINGS ARE INTENDED TO BE INCLUDED IN A COMPLETE SET OF CONSTRUCTION DOCUMENTS, INCLUDING, BUT NOT LIMITED TO: ARCHITECTURAL DRAWINGS, CIVIL DRAWINGS, AND MECHANICAL/ELECTRICAL/PLUMBING DRAWINGS. CONTRACTOR SHALL VERIFY COORDINATION OF THESE DRAWINGS WITH CONTENTS OF ABOVE DRAWING SETS SPECIFIED AND ONLY PROCEED WITH BIDDING AND CONSTRUCTION AFTER SUCH HAS TAKEN PLACE.

7. DETAILS LABELED "TYP" OR "TYPICAL" ARE TO BE APPLIED AT LOCATIONS THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY INDICATED. WHERE A DETAIL IS NOT INDICATED, THE DETAIL SHALL BE THE SAME AS FOR SIMILAR CONDITIONS OR AS SHOWN IN THE "TYPICAL DETAILS."

8. THE BUILDING IS NOT STRUCTURALLY STABLE UNTIL ALL CONNECTIONS, GRAVITY AND LATERAL FRAMING ARE COMPLETE AND HAVE ACHIEVED THEIR DESIGN STRENGTH. CONTRACTOR IS SOLELY RESPONSIBLE FOR MAINTAINING STRUCTURAL STABILITY DURING ERECTION AND CONSTRUCTION. TEMPORARY BRACING SYSTEMS ARE NOT TO BE REMOVED UNTIL STRUCTURAL WORK IS COMPLETE.

9. DO NOT STACK CONSTRUCTION MATERIALS ON THE STRUCTURE OR OVERLOAD ANY PART OF THE STRUCTURE.

10. REINFORCING STEEL:

A. ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60, EXCEPT WELDED REINFORCING WHICH SHALL BE ASTM A706 GRADE 60.

B. ALL WELDED WIRE FABRIC SHALL BE ASTM A185 AND A82 COLD DRAWN WIRE.

C. ALL ACCESSORIES FOR SUPPORTING REINFORCING SHALL BE GALVANIZED OR HAVE PLASTIC-COATED FEET.

D. REINFORCING SHALL BE DETAILED, FABRICATED, PLACED, AND SUPPORTED IN ACCORDANCE WITH ACI 315, LATEST EDITION.

E. STANDARD COVERAGE OF REINFORCING, UNLESS NOTED OTHERWISE, SHALL BE AS FOLLOWS:

a.	CAST AGAINST EARTH, PERMANENTLY EXPOSED TO WEATHER	3"
b.	EXPOSED TO EARTH AND WEATHER (FORMED)	2"

F. ALL LAP SPLICES SHALL BE CLASS B UNLESS NOTED OTHERWISE.

G. FOR REINFORCING BAR LAP LENGTHS IN CONCRETE, SEE TABLE 7/S002.

11. CONCRETE:

A. CAST-IN-PLACE CONCRETE CONSTRUCTION SHALL COMPLY WITH THE APPLICABLE BUILDING CODE REQUIREMENTS, INDUSTRY GUIDES, AND REFERENCE STANDARDS INCLUDING, BUT NOT LIMITED TO:

a. ACI 301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE
b. ACI 305R - GUIDE TO HOT WEATHER CONCRETING
c. ACI 306R - GUIDE TO COLD WEATHER CONCRETING
d. ACI 318 - STRUCTURAL CONCRETE BUILDING CODE
e. ACI 347 - GUIDE TO FORMWORK FOR CONCRETE
f. ACI SP-66 - ACI DETAILING MANUAL
g. AWS D1.4 - STRUCTURAL WELDING CODE - REINFORCING STEEL
h. CRSI - MANUAL OF STANDARD PRACTICE

B. ALL CONCRETE, UNLESS NOTED OTHERWISE, SHALL BE PORTLAND CEMENT, ASTM C150, TYPE II, DEVELOP A 28 DAY COMPRESSIVE STRENGTH OF 4,500 PSI AND HAVE MAXIMUM WATER/CEMENT RATIO OF 0.45.

C. CONCRETE EXPOSED TO WEATHER, VEHICLES, AND/OR DEICING CHEMICALS SHALL BE AIR-ENTRAINED WITH 6% (+/-) 1.5% ENTRAINED AIR BY VOLUME AT POINT OF DISCHARGE. DO NOT ALLOW AIR CONTENT OF TROWELED FINISHED FLOORS TO EXCEED 3%.

D. NORMAL WEIGHT AGGREGATES SHALL COMPLY WITH ASTM C33 STANDARD SPECIFICATION FOR CONCRETE AGGREGATES. COARSE AGGREGATE SHALL MEET THE DELETERIOUS SUBSTANCE AND PHYSICAL PROPERTIES REQUIREMENTS OF ASTM C33, TABLE 4 FOR CLASS DESIGNATION 3S OR BETTER. FINE AGGREGATE SHALL CONFORM TO ASTM C33.

E. THE CONCRETE SLAB-ON-GRADE HAVE BEEN DESIGNED FOR THE FINAL USE AND NOT FOR CONSTRUCTION CONSIDERATIONS. CONTRACTOR SHALL COORDINATE THE SLAB DESIGN WITH CONSTRUCTION NEEDS. THE SLAB DESIGN INDICATED ON THESE DRAWINGS IS TO BE CONSIDERED A MINIMUM. SUBMIT CHANGES TO THE SLAB DESIGN TO THE ENGINEER OF RECORD FOR REVIEW.

F. IT IS THE INTENT OF THESE CONCRETE SPECIFICATIONS THAT THE CONTRACTOR SUPPLY CONCRETE MIXES WITH A MINIMUM AMOUNT OF WATER IN ORDER TO LIMIT PLASTIC SHRINKAGE CRACKING IN FRESHLY PLACED CONCRETE. IT IS EXPECTED THAT PRODUCING WORKABILITY FOR CONCRETE MIXES WILL REQUIRE THE ADDITION OF WATER-REDUCING AND/OR SUPER-PLASTICIZING CHEMICAL ADMIXTURES.

G. CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD PRIOR TO USE OF SELF-CONSOLIDATING CONCRETE MIX.

H. CONCRETE SLUMP SHALL BE A MAXIMUM OF 4" +/- 1" (ASTM C143) AS DELIVERED IN THE FIELD. CONTRACTOR MAY USE CHEMICAL ADMIXTURES TO ATTAIN A MAXIMUM SLUMP OF 8" FOR WORKABILITY.

I. NO WATER MAY BE ADDED TO THE CONCRETE MIX ON SITE.

J. FLY ASH MAY BE USED AT A RATE NOT TO EXCEED 25% OF THE TOTAL CEMENT CONTENT.

K. ALL CONTROL JOINTS IN CONCRETE SLABS-ON-GRADE SHALL BE CUT TO 1/3 OF THE DEPTH. CUT JOINTS AS SOON AS POSSIBLE AFTER CONCRETE HAS BEEN PLACED WITHOUT DISLODGING AGGREGATE OR USE KEYED COLD JOINT.

L. THE UNIT POUR FOR SLABS AND WALLS SHALL NOT EXCEED 100 LINEAL FEET IN ANY ONE DIRECTION. CUT SLABS TO 1/3 THE DEPTH ON GRID LINES INTO AREAS OF ABOUT 150 SQUARE FEET.

M. PRIOR TO PLACING CONCRETE IN ANY LOCATION, IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO HAVE THOROUGHLY CHECKED AND COORDINATED ALL DIMENSIONS, ELEVATIONS, OPENINGS, RECESSES, AND BLOCKOUTS SHOWN ON THE ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS. IN THE EVENT ERRORS, CONFLICTS, OR OMISSIONS EXIST, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE ARCHITECT OR ENGINEER FOR NECESSARY CORRECTIVE ACTION.

N. EMBEDDED ITEMS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR PRIOR TO PLACING CONCRETE.

O. ANCHOR RODS SHALL BE HELD IN PLACE WITH A RIGID TEMPLATE.

P. CONCRETE CURING SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF ACI 318-14 SECTION 26.5.3 AND STANDARD PRACTICE FOR CURING CONCRETE REPORTED BY COMMITTEE 308.

12. MASONRY:

A. SPECIAL INSPECTION OF ALL REINFORCED MASONRY IS REQUIRED.

B. ALL MASONRY WALLS SHALL BE RUNNING BOND UNLESS SPECIFICALLY NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.

C. REINFORCED MASONRY SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH, F'm OF 1,500 PSI. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90 AND HAVE A NET AREA COMPRESSIVE STRENGTH OF 1,900 PSI.

D. MORTAR SHALL BE TYPE "S" FOR ABOVE-GRADE APPLICATIONS AND TYPE "M" FOR BELOW-GRADE APPLICATIONS.

E. GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,000 PSI.

F. REINFORCING STEEL SHALL BE GRADE 60 AND CONFORM TO ASTM A615.

G. MAXIMUM HEIGHT OF GROUT POUR SHALL NOT EXCEED 5'- 4".

H. VERTICAL CELLS TO BE GROUTED SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A TOTAL MINIMUM CLEAR AREA OF 3" X 3". ALL OVERHANG MORTAR, OBSTRUCTIONS, AND DEBRIS SHALL BE CLEANED FROM THE INSIDE OF CELLS PRIOR TO GROUTING.

I. REINFORCEMENT SHALL BE PLACED PRIOR TO GROUTING.

J. UNITS SHALL BE PLACED TO THE FULL HEIGHT OF THE GROUT POUR AND GROUT SHALL BE PLACED IN A CONTINUOUS LIFT. BETWEEN GROUT POURS, A HORIZONTAL CONSTRUCTION JOINT SHALL BE FORMED BY STOPPING GROUT 1-1/2" BELOW A MORTAR JOINT EXCEPT AT THE TOP OF THE WALL.

K. ALL CONCRETE MASONRY WALLS SHALL BE REINFORCED WITH HORIZONTAL JOINT REINFORCING WITH #9 GAGE (W1.7) SIDE RODS AND #9 GAGE (W1.7) CROSS RODS, GALVANIZED REINFORCING @ 16" O.C. VERTICALLY. PROVIDE TRUSS TYPE FOR SINGLE WYTHE CMU WALLS WITH (2) SIDE RODS. PROVIDE LADDER TYPE FOR TWO WYTHE WALLS WITH (3) SIDE RODS AND A CAVITY DRIP.

L. ALL CMU WALLS SHALL BE REINFORCED VERTICALLY AS SPECIFIED ON DRAWINGS WITH THE SPECIFIED BAR FOR THAT WALL AT THE ENDS OF WALLS, AT EACH SIDE OF CONTROL OR EXPANSION JOINTS, AND AT EACH SIDE OF EACH OPENING, ALL FULLY GROUTED CELLS. IF REINFORCING IS NOT SHOWN ON THE DRAWINGS, REINFORCE WITH #5 BARS AT 4'-0" ON CENTER.

M. GROUT SOLID ALL REINFORCED CELLS, CELLS BELOW GRADE, AND ALL CELLS BELOW FINISH FLOOR.

N. PROVIDE BOND BEAMS AT THE BOTTOM AND TOP OF EACH WALL, ABOVE AND BELOW OPENINGS, AND WHERE SHOWN. BOND BEAMS SHALL HAVE 2-#5 CONTINUOUS AND BE FULLY GROUTED. VERTICAL BARS SHALL EXTEND INTO THE BOND BEAM.

O. EXTEND VERTICAL REINFORCING THROUGH BOND BEAMS UNLESS SPECIFICALLY NOTED OTHERWISE.

P. PROVIDE DOWELS INTO FLOOR OR FOUNDATION AT BOTTOM OF WALL TO MATCH SIZE AND SPACING OF VERTICAL WALL REINFORCING, UNLESS NOTED OTHERWISE ON DRAWINGS.

Q. STABILIZE TOP OF ALL VERTICALLY REINFORCED WALLS PER DRAWING DETAILS.

R. FOR REINFORCING BAR LAP LENGTHS IN MASONRY, SEE TABLE 4/S002.

13. STRUCTURAL STEEL:

A. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN, LATEST EDITION, AND AISC "CODE OF STANDARD PRACTICE."

B. ALL STRUCTURAL STEEL FOR WIDE FLANGE AND WT SHAPES SHALL BE ASTM A992, GRADE 50, UNLESS NOTED OTHERWISE ON THE PLANS. ALL ANGLES, PLATES, AND CHANNELS SHALL BE ASTM A36 UNLESS NOTED OTHERWISE. ALL RECTANGULAR AND ROUND HSS SHAPES SHALL BE ASTM A500, GRADE B.

C. ALL STRUCTURAL STEEL WELDS IN THE SHOP OR IN THE FIELD SHALL BE PERFORMED BY A QUALIFIED WELDER AND SHALL CONFORM TO THE CURRENT REQUIREMENTS OF AWS.

D. FILLET WELDS NOT SPECIFICALLY SIZED IN THESE DOCUMENTS SHALL BE THE MINIMUM SIZE IN ACCORDANCE WITH AWS D1.1, LATEST EDITION, DEPENDENT ON THE THINNER PART JOINED, BUT NO LESS THAN 3/16".

E. WELDING ELECTRODES SHALL BE E70XX

F. ALL OPENINGS IN ROOF OVER 8" IN ANY DIRECTION SHALL HAVE AN L3x3x¼ ANGLE FRAME (4 SIDES) BETWEEN JOISTS, UNLESS NOTED OTHERWISE ON DRAWINGS.

G. PROVIDE AN L4x4x¼ ANGLE BETWEEN JOISTS AT EACH EDGE OF AHU. COORDINATE LOCATION WITH MECHANICAL.

H. THE CONTRACTOR SHALL PROVIDE SHELF ANGLES, GLASS SUPPORTS, LINTELS, AND OTHER MISCELLANEOUS STEEL, AS SHOWN ON THE DRAWINGS, AND AS REQUIRED TO PROVIDE SUPPORT (STABILIZATION) AROUND AND THROUGHOUT THE BUILDING. NOT EVERY DETAIL IS SHOWN. SEE ARCHITECTURAL AND ELEVATOR DRAWINGS FOR ADDITIONAL MISCELLANEOUS STEEL DETAILS.

14. POST-INSTALLED ANCHORAGE:

A. DESIGN OF ALL POST-INSTALLED ANCHORAGE SHALL BE IN ACCORDANCE WITH ACI 318 APPENDIX D AND SHALL CONSIDER CRACKED CONCRETE CONDITIONS.

B. ALL POST-INSTALLED ANCHORS SHALL BE INSTALLED BY TRAINED PERSONNEL PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII) AS SHOWN IN THE CORRESPONDING ICC-ESR REPORT AND INCLUDED IN THE ANCHOR PACKAGING.

C. THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. THE ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL POST-INSTALLED ANCHORAGE ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.

D. EXISTING REINFORCING BARS IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. EXISTING REINFORCING BARS SHALL NOT BE CUT UNLESS NOTED OTHERWISE ON THE DRAWINGS. THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS AT THE LOCATIONS OF THE CONCRETE ANCHORS BY FERROSCAN, GPR, X-RAY, OR OTHER MEANS PRIOR TO INSTALLATION OF ANCHORS.

E. ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.

F. EMBEDMENT DEPTH FOR MECHANICAL EXPANSION ANCHORS SHALL BE DEFINED AS THE DISTANCE FROM THE SURFACE OF THE LOAD BEARING BASE MATERIAL TO THE DEEPEST PART OF THE ANCHOR WHICH TENSION LOAD IS TRANSFERRED TO THE CONCRETE, MEASURED PRIOR TO APPLYING TORQUE TO THE ANCHOR.

G. EMBEDMENT DEPTH FOR ADHESIVE AND SCREW TYPE ANCHORS SHALL BE DEFINED AS THE DISTANCE FROM THE SURFACE OF THE LOAD BEARING BASE MATERIAL TO THE DEEPEST PART OF THE ANCHOR AFTER THE ANCHOR HAS BEEN INSTALLED INTO THE HOLE.

H. ADHESIVE ANCHORING SYSTEMS SHALL BE ACCEPTABLE FOR LONG-TERM LOADING. ONLY NON-EPOXY (HYBRID) BASED ADHESIVES SHALL BE INSTALLED WHEN BASE MATERIAL TEMPERATURES ARE BELOW 40 DEGREES F.

I. POST-INSTALLED ANCHORAGE SHALL ONLY BE USED WHERE SPECIFIED ON THESE DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER PRIOR TO USING POST-INSTALLED ANCHORAGE FOR MISSING OR MIS-LOCATED CAST-IN-PLACE ANCHORS. CARE SHALL BE TAKEN TO AVOID CONFLICTS WITH EXISTING REINFORCING BARS.

J. STAINLESS STEEL ANCHORS ARE REQUIRED AT ALL EXPOSED LOCATIONS.

K. FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW OR ON THE DRAWINGS, CONTRACTOR SHALL SUBMIT DATA SUBSTANTIATING THE SUBSTITUTED PRODUCT PERFORMANCE VALUES. (POST-INSTALLED ANCHOR SUBSTITUTIONS SHALL BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO THEIR USE.)

L. SUBMITTALS ARE THE CONTRACTOR'S RESPONSIBILITY AND MUST INCLUDE EVALUATION REPORTS FROM THE INTERNATIONAL CODE COUNCIL (ICC-ES EVALUATION REPORT).

M. CONCRETE ANCHORS

a. MECHANICAL ANCHORS FOR USE IN CRACKED AND UNCRACKED CONCRETE SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC-ES AC193. PRE-APPROVED MECHANICAL ANCHORS INCLUDE:

1 HILTI KWIK BOLT TZ EXPANSION ANCHOR (ICC-ES ESR-1917)
2 HILTI HSL-3 HEAVY DUTY EXPANSION ANCHOR (ICC-ES ESR-1545)
3 HILTI HDA UNDERCUT ANCHOR (ICC-ES ESR-1546)
4 HILTI KWIK HUS EZ SCREW ANCHOR (ICC-ES ESR-3027)
5 SIMPSON STRONG-TIE STRONG-BOLT 2 WEDGE ANCHOR (ICC-ES ESR-3037)
6 SIMPSON STRONG-TIE TITEN-HD SCREW ANCHOR (ICC-ES ESR-2713)

b. ADHESIVE ANCHORING SYSTEMS FOR USE IN CRACKED AND UNCRACKED CONCRETE SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308. PRE-APPROVED ADHESIVE ANCHORING SYSTEMS INCLUDE:

1 HILTI HIT-HY 200 ADHESIVE ANCHORING SYSTEM (ICC-ES ESR-3187)
2 HILTI HIT-RE 500-V3 ADHESIVE ANCHORING SYSTEM (ICC-ES ESR 3814)
3 SIMPSON STRONG-TIE SET-3G ADHESIVE ANCHOR SYSTEM (ICC-ES ESR-4057)
4 SIMPSON STRONG-TIE AT-XP ADHESIVE ANCHOR SYSTEM (IAPMO ER-263)

O. MASONRY ANCHORS

a. ANCHORAGE TO SOLID-GROUTED MASONRY

1 MECHANICAL AND SCREW TYPE ANCHORS FOR USE IN SOLID-GROUTED CONCRETE MASONRY SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC01 OR ICC-ES AC106. PRE-APPROVED MECHANICAL AND CONCRETE SCREW ANCHORS INCLUDE:

i HILTI KWIK HUS EZ SCREW ANCHOR (ICC-ES ESR-3056)
ii HILTI KWIK BOLT 3 EXPANSION ANCHOR (ICC-ES ESR 1385)
iii SIMPSON STRONG-TIE WEDGE-ALL ANCHOR (ICC-ES ESR-1396)
iv SIMPSON STRONG-TIE TITEN-HD SCREW ANCHOR (ICC-ES ESR-1056)

2 ADHESIVE ANCHORING SYSTEMS FOR USE IN SOLID-GROUTED CONCRETE MASONRY SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC58. PRE-APPROVED ADHESIVE ANCHORING SYSTEMS INCLUDE:

i HILTI HIT-HY 270 ADHESIVE ANCHORING SYSTEM (ICC-ES ESR-4143)
ii SIMPSON STRONG-TIE SET ADHESIVE ANCHOR SYSTEM (ICC-ES ESR-1772)

b. ANCHORAGE TO HOLLOW CONCRETE MASONRY/UNREINFORCED CLAY BRICK MASONRY

1 SCREW TYPE ANCHORS FOR USE IN HOLLOW CONCRETE MASONRY SHALL HAVE BEEN TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC106. PRE-APPROVED SCREW ANCHORS INCLUDE:

i SIMPSON STRONG-TIE TITEN-HD (ICC-ES ESR-1056)

2 ADHESIVE ANCHORING SYSTEMS WITH SCREEN TUBES SHALL BE TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC58 OR AC60, AS APPROPRIATE. THE APPROPRIATE SCREEN TUBE SHALL BE USED AS RECOMMENDED BY THE ADHESIVE MANUFACTURER. PRE-APPROVED ADHESIVE ANCHORING SYSTEMS WITH SCREEN TUBES INCLUDE:

i HILTI HIT-HY 270 ADHESIVE ANCHORING SYSTEM (ICC-ES ESR-4143) - FOR HOLLOW BRICK AND CMU
ii HILTI HIT-HY 270 ADHESIVE ANCHORING SYSTEM (ICC-ES ESR-4144) - FOR UNREINFORCED MASONRY
iii SIMPSON STRONG-TIE SET ADHESIVE ANCHOR SYSTEM (ICC-ES ESR-1772)

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STRUCTURAL ABBREVIATIONS — 2 / S001

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

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03/21/2023
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MISSOURI STATE CERTIFICATE OF AUTHORITY # 001400

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION: DATE:
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GENERAL NOTES

SHEET NUMBER:

S-001

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P. LOW VELOCITY FASTENERS:

a. ANCHORAGE TO CONCRETE AND MASONRY SHALL BE IN ACCORDANCE WITH ICC-ES AC70. PRE-APPROVED PRODUCTS INCLUDE:

1 POWDER ACTUATED FASTENERS:

i HILTI X-U PER ICC-ES EST-2269
ii HILTI X-P PER ICC-ES EST-2269
iii SIMPSON STRONG-TIE 'POWDER ACTUATED PINS' AS SPECIFIED (ICC-ES ESR 2138)

2 GAS-ACTUATED FASTENERS:

i SIMPSON STRONG-TIE 'POWDER ACTUATED PINS' AS SPECIFIED (ICC-ES ESR 2811)
ii ANCHORAGE TO STEEL SHALL BE IN ACCORDANCE WITH ICC-ES AC70. PRE-APPROVED PRODUCTS INCLUDE:

3 POWDER ACTUATED FASTENERS:

i HILTI X-U PER ICC-ES EST-2269
ii HILTI X-U 15 PER ICC-ES EST-2269
iii SIMPSON STRONG-TIE 'POWDER ACTUATED PINS' AS SPECIFIED (ICC-ES ESR 2138)

4 GAS-ACTUATED FASTENERS:

i SIMPSON STRONG-TIE 'POWDER ACTUATED PINS' AS SPECIFIED (ICC-ES ESR 2811)

15. FOUNDATIONS:

A. FOUNDATIONS AND SLABS-ON-GRADE ARE DESIGNED TO BEAR ON NON-EXPANSIVE SOIL CAPABLE OF SUSTAINING A MINIMUM NET ALLOWABLE BEARING PRESSURE OF 2000 PSF.

B. A SITE INVESTIGATION AND GEOTECHNICAL REPORT WAS NOT PREPARED FOR THIS SITE. THE FINISH EXCAVATION SHALL BE INSPECTED BY A REGISTERED SOILS ENGINEER TO VERIFY THE BEARING CAPACITY. IF ADEQUATE BEARING IS NOT ENCOUNTERED AT THE SPECIFIED BEARING ELEVATION, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER IMMEDIATELY.

C. CONTRACTOR SHALL REMOVE EXISTING FOOTINGS AND FOUNDATIONS THAT ARE LOCATED WITHIN THE FOOTPRINT OF THE SLAB-ON-GRADE.

D. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY UNUSUAL SOIL CONDITIONS THAT ARE IN VARIANCE WITH THE SPECIFIED BEARING CAPACITIES OR WHEN DIFFERENT BEARING MATERIAL IS EVIDENT AND THERE IS A QUESTION OF BEARING CAPACITY.

E. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF UNSUITABLE FILL MATERIAL OR ORGANIC MATERIAL.

16. SUBMITTALS:

A. CODE COMPLIANT STRUCTURAL DESIGN OF THE FOLLOWING ITEMS IS DEFERRED TO THE GENERAL CONTRACTOR.

a. TEMPORARY BRACING AND SHORING

B. DEFERRED SUBMITTALS SHALL INCLUDE SUBSTANTIATING STRUCTURAL CALCULATIONS AND SHALL BEAR THE SIGNED WET OR CERTIFIED ELECTRONIC STAMP OF A REGISTERED PROFESSIONAL ENGINEER WHO IS LEGALLY AUTHORIZED TO PRACTICE IN THE JURISDICTION WHERE PROJECT IS LOCATED AND WHO IS EXPERIENCED IN PROVIDING ENGINEERING SERVICES OF THE KIND INDICATED. DEFERRED SUBMITTALS SHALL BEAR THE APPROVAL STAMP OF THE PROJECT ENGINEER OF RECORD.

C. ALL SHOP DRAWINGS AND SUBMITTALS MUST BE REVIEWED AND APPROVED BY THE CONTRACTOR PRIOR TO SUBMITTAL. ENGINEER'S REVIEW OF SHOP DRAWINGS IS LIMITED TO CHECKING FOR GENERAL CONFORMANCE WITH DESIGN DRAWINGS AND STRENGTH OF COMPONENTS AND MATERIALS. CONTRACTOR IS RESPONSIBLE FOR ANY CHANGES FROM THE DESIGN DRAWINGS, QUANTITIES, DIMENSIONAL ERRORS, OR OMISSIONS IN THE SHOP DRAWINGS.

D. ALL SHOP DRAWINGS MUST BE ORIGINAL DOCUMENTS AND SHALL NOT BE REPRODUCTIONS OF THESE CONTRACT DOCUMENTS.

E. SUBMIT SHOP DRAWINGS DETAILING FABRICATION OF EACH MEMBER AND ITS CONNECTIONS. CONNECTION DRAWINGS ARE TO BE PREPARED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER.

F. CONTRACTOR SHALL SUBMIT STRUCTURAL SHOP DRAWINGS FOR THE FOLLOWING:

a. CONCRETE AND MASONRY GROUT MIX DESIGN AND MATERIALS
b. CONCRETE AND MASONRY REINFORCING STEEL
c. MASONRY MATERIALS
d. STRUCTURAL STEEL
e. POST-INSTALLED ANCHORS

STRUCTURAL GENERAL NOTES - CONTINUED

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A.F.F.	ABOVE FINISH FLOOR	I.F.	INSIDE FACE
ALT	ALTERNATE	JST	JOIST
A.B.	ANCHOR BOLT	JT	JOINT
ARCH	ARCHITECTURAL PLANS	K	KIP (1000 LBS)
&	AND	LBS	POUNDS
@	AT	LLH	LONG LEG HORIZONTAL
BAL	BALANCE	LLV	LONG LEG VERTICAL
BLDG	BUILDING	MANUF	MANUFACTURER
BM	BEAM	MAS	MASONRY
BOT	BOTTOM	MAX	MAXIMUM
BRG	BEARING	MIN	MINIMUM
BTWN	BETWEEN	MISC	MISCELLANEOUS
CL	CENTER LINE	MK	MARK
C.G.S.	CENTER OF GRAVITY OF STRANDS	N.S.	NEAR SIDE
CIP	CAST-IN-PLACE CONCRETE	N.T.S.	NOT TO SCALE
CLR	CLEAR	O.C.	ON CENTER
C.J.	CONTROL JOINT	O.F.	OUTSIDE FACE
COL	COLUMN	OPNG	OPENING
CMU	CONCRETE MASONRY UNIT	OPP	OPPOSITE
CONC	CONCRETE	PC	PRECAST
CONT	CONTINUOUS	PSF	POUNDS PER SQUARE FOOT
CTR	CENTER	PSI	POUNDS PER SQUARE INCH
DIA	DIAMETER	PT	POST TENSION
DEG	DEGREE	RAD	RADIUS
DIM	DIMENSION	REINF	REINFORCEMENT
DTL	DETAIL	REF	REFERENCE
DWG	DRAWING	RE:	REFERENCE
E.F.	EACH FACE	SCHED	SCHEDULE
ELEV	ELEVATION	SECT	SECTION
EQ	EQUAL	SHT	SHEET
E.W.	EACH WAY	SIM	SIMILAR
EXIST	EXISTING	SPA	SPACING
EXP	EXPANSION	SPECS	SPECIFICATION
EXT	EXTERIOR	SQ	SQUARE
FND	FOUNDATION	STD	STANDARD
FIN	FINISHED	STL	STEEL
FLR	FLOOR	T&B	TOP & BOTTOM
F.S.	FAR SIDE	T.O.	TOP OF...(ADD ITEM)
FTG	FOOTING	TYP	TYPICAL
F.V.	FIELD VERIFY	U.N.O.	UNLESS NOTED OTHERWISE
GA	GAUGE	VAR	VARIES
G.B.	GRADE BEAM	VERT	VERTICAL
GALV	GALVANIZED	w/	WITH
HORIZ	HORIZONTAL	W.W.F.	WELDED WIRE FABRIC

STRUCTURAL ABBREVIATIONS

2 / S002

MASONRY REINFORCING STEEL SPLICE LENGTH

NOMINAL CMU COARSE SIZE	#4 BAR	#5 BAR	#6 BAR	#7 BAR	#8 BAR	#9 BAR
6"	2'-0"	2'-8"	5'-1"	-	-	-
8"	2'-0"	2'-6"	3'-7"	5'-0"	-	-
10"	2'-0"	2'-6"	3'-0"	3'-10"	5'-11"	-
12"	2'-0"	2'-6"	3'-0"	3'-6"	4'-9"	6'-1"

NOTES:

1. TABULATED SPLICE LENGTH VALUES ARE BASED ON UNCOATED BARS, Fy = 60 ksi, AND F'm = 1500 psi PER ACI 530-11.
2. BAR LAP SPLICE LENGTH SHALL BE AS NOTED ABOVE, UNLESS NOTED OTHERWISE IN THE DOCUMENTS.
3. REQUIRED LAP SPLICE LENGTH SHALL, UNDER NO CIRCUMSTANCES, BE LESS THAN 2'-0".
4. DEVELOPMENT LENGTH OF EPOXY COATED BARS SHALL BE THE VALUES SHOWN IN THE TABLE MULTIPLIED BY 1.5.

MASONRY REINF SPLICE TABLE

4 / S002

CONCRETE REINFORCING STEEL SPLICE LENGTH

CONCRETE STRENGTH F'_c, PSI	TYPE I CLASS B SPLICE BOTTOM/VERT. BAR		TYPE II CLASS B SPLICE TOP BAR		TYPE III CLASS B SPLICE BOTTOM/VERT. BAR		TYPE IV CLASS B SPLICE TOP BAR	
	#6 AND SMALLER	#7 AND LARGER	#6 AND SMALLER	#7 AND LARGER	#6 AND SMALLER	#7 AND LARGER	#6 AND SMALLER	#7 AND LARGER
3000	$57d_b$	$72d_b$	$74d_b$	$92d_b$	$86d_b$	$107d_b$	$111d_b$	$139d_b$
4000	$49d_b$	$61d_b$	$64d_b$	$81d_b$	$74d_b$	$92d_b$	$96d_b$	$120d_b$
5000	$44d_b$	$55d_b$	$57d_b$	$72d_b$	$66d_b$	$83d_b$	$86d_b$	$108d_b$
6000	$40d_b$	$51d_b$	$52d_b$	$65d_b$	$60d_b$	$75d_b$	$78d_b$	$99d_b$

d_b = DIAMETER OF BAR (INCHES)

TYPE I & II: BARS WITH CLEAR SPACING
CLEAR COVER NOT LESS THAN d_b
STIRRUPS OR TIES THROUGHOUT THE SPLICE
LENGTH NOT LESS THAN CODE MINIMUM.

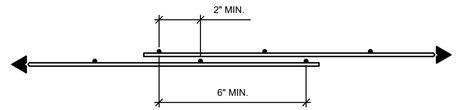
OR

BARS WITH CLEAR SPACING NOT LESS THAN $2d_b$
CLEAR COVER NOT LESS THAN d_b.

TYPE III & IV: ALL OTHER CASES

NOTES:

1. TABULATED SPLICE LENGTH VALUES ARE BASED ON UNCOATED BARS, FY = 60 ksi.
2. BAR LAP SPLICE LENGTH SHALL BE AS NOTED IN THE DOCUMENTS AND AS REQUIRED IN NOTE 3 BELOW.
3. REQUIRED LAP SPLICE LENGTH = TABULATED SPLICE LENGTH MULTIPLIED BY ALL APPLICABLE ADJUSTMENT FACTORS.
   A. FOR CLASS A SPLICE = 0.769
   B. FOR LIGHTWEIGHT CONCRETE = 1.3
   C. FOR EPOXY COATED BARS = 1.2
      1. FOR EPOXY COATED BARS W/ COVER LESS THAN $3d_b$ OR CLEAR SPACING LESS THAN $6d_b$ = 1.5
   D. FOR Fy OTHER THAN 60ksi = Fy (ACTUAL)/60
4. REQUIRED LAP SPLICE LENGTH SHALL, UNDER NO CIRCUMSTANCES, BE LESS THAN 12".
5. REQUIRED SPLICES OF PLAIN WIRE WELDED WIRE REINFORCEMENT (W.W.F.) SHALL BE AS SHOWN BELOW U.N.O. ON THE DOCUMENTS:



TYPICAL WELDED WIRE REINFORCEMENT SPLICE

CONCRETE REINF SPLICE TABLE

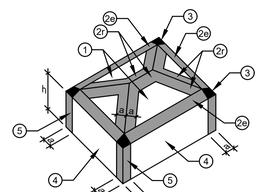
3 / S002

COMPONENTS & CLADDING WIND PRESSURES (PSF)
HIP ROOF, 20° < θ ≤ 27°, 110 MPH (3 SEC GUST), EXPOSURE C, LRFD

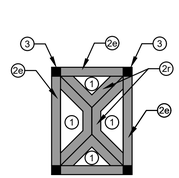
ZONE	HEIGHT																	
	0-15'		15-20'		20-25'		25-30'		30-35'		35-40'		40-45'		45-50'		50-55'		55-60'	
1	+19.6	-35.2	+20.9	-37.5	+21.8	-39.1	+22.7	-40.7	+23.5	-42.2	+24.1	-43.4	+24.8	-44.5	+25.3	-45.4	+25.8	-46.3	+26.2	-47.1
2e	+19.6	-48.6	+20.9	-51.9	+21.8	-54.1	+22.7	-56.3	+23.5	-58.3	+24.1	-59.9	+24.8	-61.5	+25.3	-62.7	+25.8	-63.9	+26.2	-65.1
2r	+19.6	-48.6	+20.9	-51.9	+21.8	-54.1	+22.7	-56.3	+23.5	-58.3	+24.1	-59.9	+24.8	-61.5	+25.3	-62.7	+25.8	-63.9	+26.2	-65.1
3	+19.6	-48.6	+20.9	-51.9	+21.8	-54.1	+22.7	-56.3	+23.5	-58.3	+24.1	-59.9	+24.8	-61.5	+25.3	-62.7	+25.8	-63.9	+26.2	-65.1
4	+26.4	-28.6	+28.1	-30.4	+29.3	-31.7	+30.5	-33.0	+31.6	-34.2	+32.5	-35.2	+33.4	-36.1	+34.0	-36.8	+34.7	-37.5	+35.3	-38.2
5	+26.4	-35.2	+28.1	-37.5	+29.3	-39.1	+30.5	-40.7	+31.6	-42.2	+32.5	-43.4	+33.4	-44.5	+34.0	-45.4	+34.7	-46.3	+35.3	-47.1

NOTES:

1. WIND ZONES ARE IN ACCORDANCE WITH ASCE 7-16, FIGURE 30.4-1 WITH A ROOF ANGLE 20° - 27° (HIP ROOF)
2. PRESSURES ARE BASED ON AN EFFECTIVE WIND AREA OF 10 SQUARE FEET.
3. PRESSURES SHOWN ARE NOMINAL WIND PRESSURES AT ULTIMATE LOAD LEVEL (LRFD) AND SHALL BE USED IN ACCORDANCE WITH THE LOAD COMBINATIONS SPECIFIED IN ASCE 7-16, CHAPTER 2.
4. DESIGNER MAY USE THE APPROPRIATE ADJUSTMENT FACTORS OR METHODS OF ASCE 7-16 TO COMPUTE COMPONENT & CLADDING PRESSURES FOR SPECIFIC COMPONENTS OF THIS STRUCTURE.
5. PRESSURES SHOWN ARE APPLIED NORMAL TO THE SURFACE, FOR EXPOSURE & HEIGHT INDICATED ON THE TABLE. ADJUST TO OTHER CONDITIONS USING EQUATION 30.4-1.
6. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM THE SURFACES, RESPECTIVELY.
7. PARAPET WIND PRESSURES HAVE NOT BEEN PROVIDED AND SHALL BE CALCULATED USING SECTION 30.8 OF ASCE 7-16.
8. NOTATION:
   a: 10 PERCENT OF LEAST HORIZONTAL DIMENSION OR 0.4h, WHICHEVER IS SMALLER, BUT NOT LESS THAN 4% OF LEAST HORIZONTAL DIMENSION OR 3 FT.
   h: MEAN ROOF HEIGHT, IN FEET, EXCEPT THAT EAVE HEIGHT SHALL BE USED FOR ROOF ANGLES <10°.
   θ: ANGLE OF PLANE OF ROOF FROM HORIZONTAL, IN DEGREES.



HIP ROOF



HIP ROOF PLAN

INTERIOR ZONES | END ZONES | CORNER ZONES

COMPONENETS & CLADDING WIND PRESSURE TABLE

7 / S002

NOT USED

5 / S002

NOT USED

6 / S002

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

DAVID MARK MCNAGHTEN NUMBER E-23021
03/21/2023
DAVID MARK McNAGHTEN P.E.
MO# E-23021

MEP ENGINEER:

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(PROJECT # P23007)

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MISSOURI STATE CERTIFICATE OF AUTHORITY # 001400

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: DLH
CHECKED BY: ZRR
DESIGNED BY:

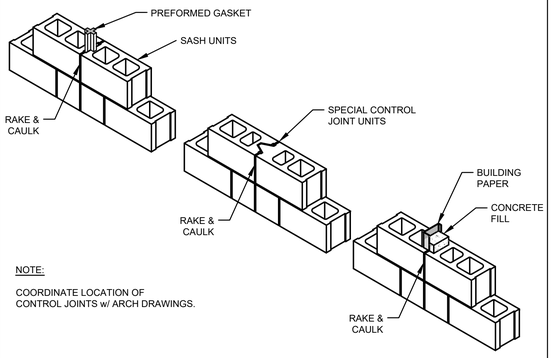
SHEET TITLE:

TYPICAL DETAILS

SHEET NUMBER:

S-002

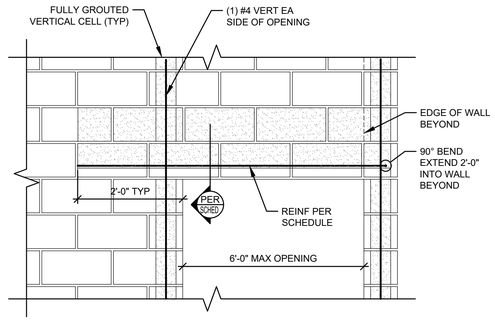
11 OF 111 SHEETS
MARCH 21, 2023



MASONRY CONTROL JOINT DETAILS

N.T.S.

1 / S003



REINFORCING @ OPENING @ END OF WALL

N.T.S.

2 / S003

LINTEL SCHEDULE

CMU WALL THICKNESS	LINTEL REINFORCING	LINTEL DETAIL
6" NOMINAL	1- #4	

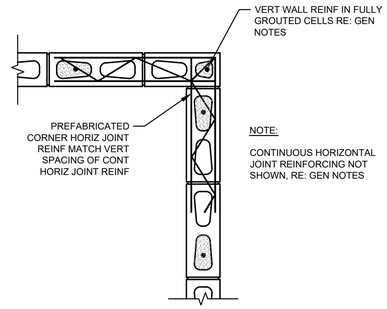
NOTES:

1. DETAILS SHOWN ARE FOR INTERIOR OR EXTERIOR NON-LOAD BEARING MASONRY WALLS.
2. SHORING IS REQUIRED AT OPENING UNTIL BOND BEAM HAS ACHIEVED THE SPECIFIED 28 DAY DESIGN STRENGTH.

LINTEL SCHEDULE

N.T.S.

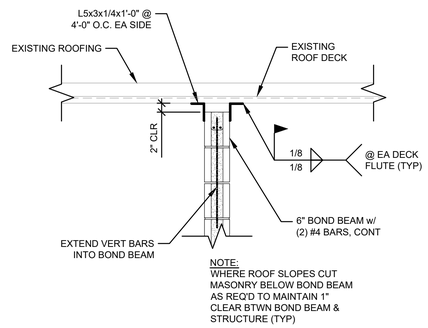
3 / S003



CORNER JOINT REINF DETAIL

N.T.S.

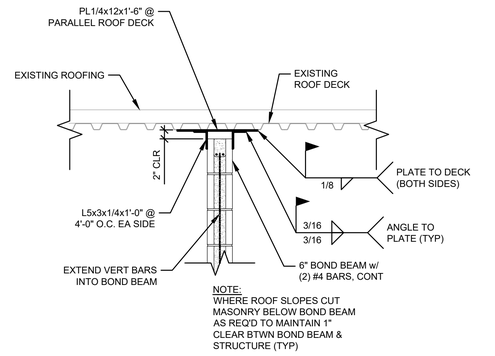
4 / S003



MASONRY DETAIL @ ROOF

N.T.S.

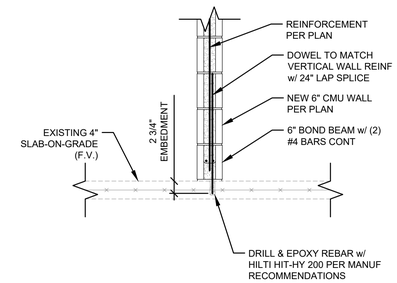
5 / S003



MASONRY DETAIL @ ROOF

N.T.S.

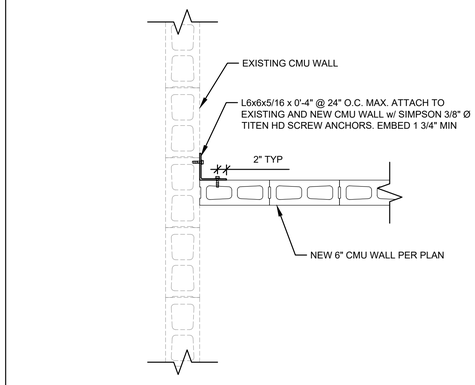
6 / S003



MASONRY DETAIL @ EXISTING SLAB

N.T.S.

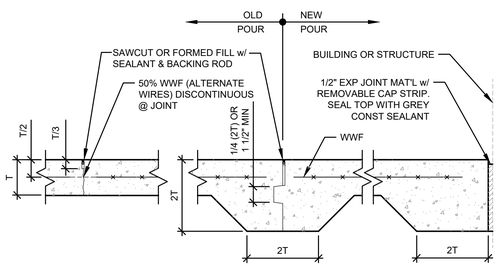
7 / S003



MASONRY WALL ATTACHMENT

N.T.S.

8 / S003



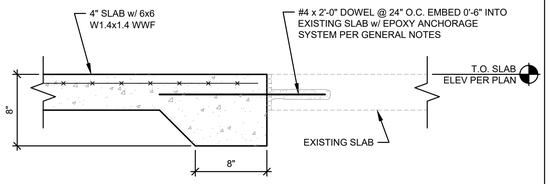
NOTE:

1. SEE PLAN FOR CONCRETE SLAB-ON-GRADE THICKNESS & REINFORCING.
2. CONTRACTOR MAY SUBSTITUTE SMOOTH DOWELS FOR KEY. CONTACT ENGINEER FOR DETAILS.
3. CONTRACTION JOINT SHALL BE CUT TO 1/3 OF DEPTH. CUT JOINTS AS SOON AS POSSIBLE AFTER CONCRETE HAS BEEN PLACED WITHOUT DISLODGING AGGREGATE. SEE PLANS FOR JOINT LAYOUT. WHERE LAYOUT IS NOT SHOWN, CUT INTO AREAS APPROXIMATELY 12'x12'.

SLAB-ON-GRADE JOINT DETAILS

N.T.S.

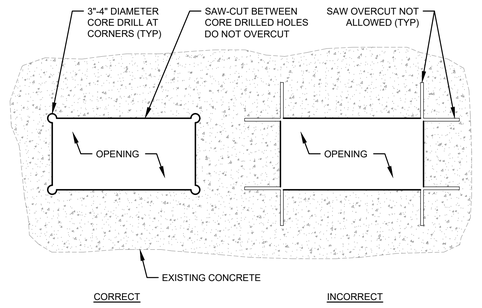
9 / S003



SLAB-ON-GRADE EXTENSION DETAILS

N.T.S.

10 / S003



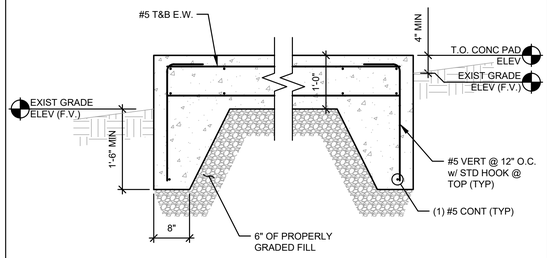
NEW OPENING IN EXISTING CONCRETE SLAB

N.T.S.

11 / S003

NOTE:

REFERENCE MECHANICAL AND ARCHITECTURAL DRAWINGS FOR EXACT SIZE AND LOCATION OF NEW CONCRETE PADS.



CONCRETE PAD DETAIL

N.T.S.

12 / S003

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

DAVID MARK McNAGHTEN NUMBER E-23021

03/21/2023

DAVID MARK McNAGHTEN P.E.
MO# E-23021

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(PROJECT # P23007)

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MISSOURI STATE CERTIFICATE OF AUTHORITY # 001400

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DRAWN BY: DLH
CHECKED BY: ZRR
DESIGNED BY:

SHEET TITLE:

TYPICAL DETAILS

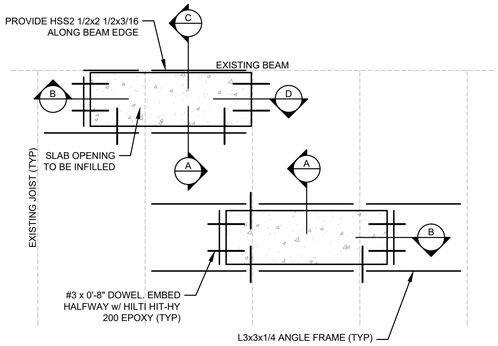
SHEET NUMBER:

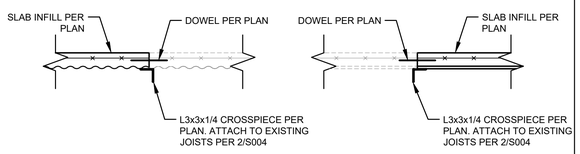
S-003

12 OF 111 SHEETS
MARCH 21, 2023

NOTES:

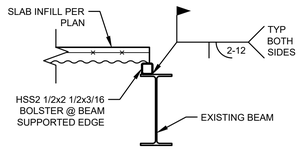
1. FIELD VERIFY LOCATIONS TO BE INFILLED AND COORDINATE w/ MEP.
2. ALL DECK EDGES SHALL BE SUPPORTED BY A JOIST, BEAM, OR ANGLE FRAME.
3. DECK SHALL BE ATTACHED TO SUPPORT STEEL w/ 5/8" Ø PUDDLE WELDS @ 6" O.C. AND CORNERS.
4. INFILL SLAB-ON-DECK 3 1/2" NORMAL WEIGHT CONCRETE ON 9/16" 24 GA DECK w/ 6x6 - W2.9xW2.9.



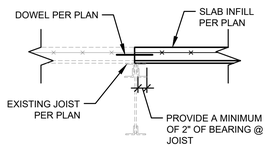


SECTION A

SECTION B



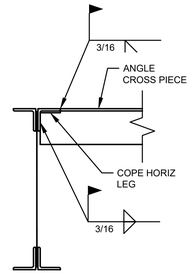
SECTION C



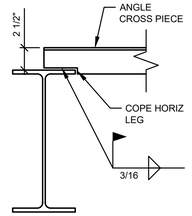
SECTION D

SLAB-ON-DECK INFILL DETAIL

N.T.S. — 1 / S004



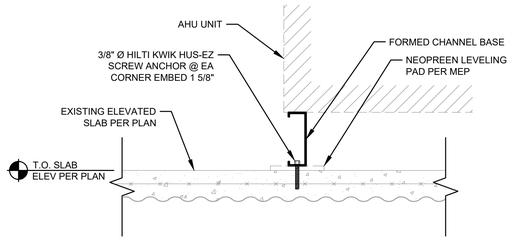
OPTION 1



OPTION 2

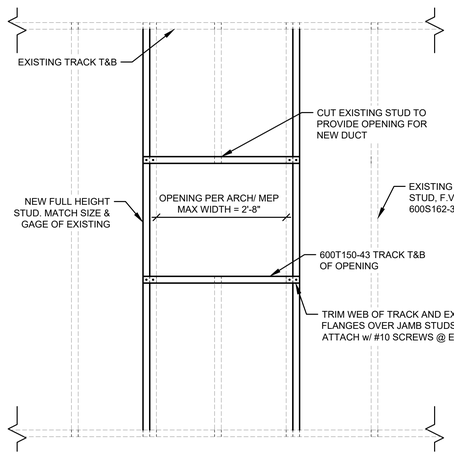
ANGLE ATTACHMENT DETAILS

N.T.S. — 2 / S004



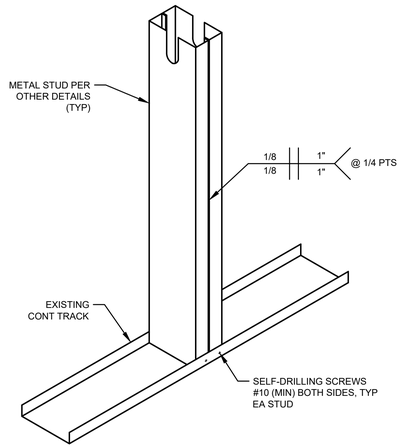
UNIT CURB DETAIL

N.T.S. — 3 / S004



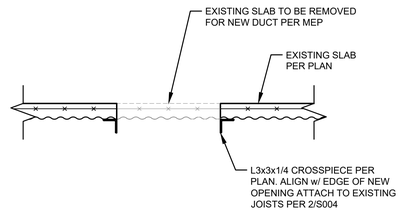
STUD FRAMED OPENING DETAIL

N.T.S. — 4 / S004



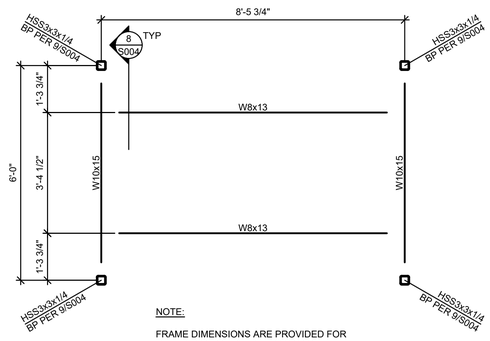
DOUBLE STUD COLUMN DETAIL

N.T.S. — 5 / S004



NEW SLAB OPENING DETAIL

N.T.S. — 6 / S004

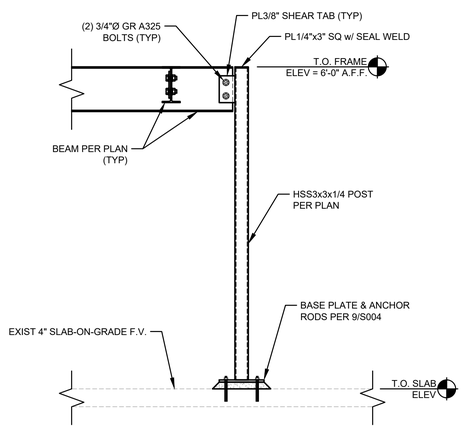


NOTE:

FRAME DIMENSIONS ARE PROVIDED FOR REFERENCE ONLY. DIMENSIONS SHALL BE CONFIRMED w/ ARCH/MEP & STRUCTURAL PRIOR TO FABRICATION.

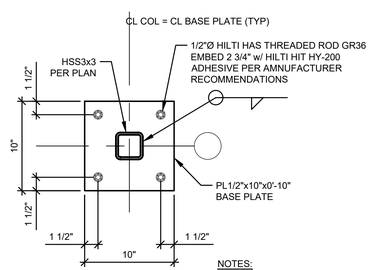
MAU SUPPORT FRAME

N.T.S. — 7 / S004



MAU SUPPORT FRAME DETAIL

N.T.S. — 8 / S004



NOTES:

1. PLACE BASE PLATES ON 1 1/2" NON-SHRINK GROUT U.N.O.
2. EXPOSED POST INSTALLED ANCHORS SHALL BE STAINLESS STEEL.

BASE PLATE DETAIL

N.T.S. — 9 / S004

NOT USED

10 / S004

NOT USED

11 / S004

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

DAVID MARK MCNAGHTEN NUMBER E-23021
03/21/2023
DAVID MARK McNAGHTEN P.E.
MO# E-23021

MEP ENGINEER:

InSite Group
DEDICATION. DESIRE. INTEGRITY.
3540 NE RALPH POWELL RD., STE. B
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(PROJECT # P23007)

PAGE McNAGHTEN ASSOC., INC.
PROFESSIONAL ENGINEERING CORPORATION
d/b/a PMA ENGINEERING
MISSOURI STATE CERTIFICATE OF AUTHORITY # 001400

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: DLH
CHECKED BY: ZRR
DESIGNED BY:

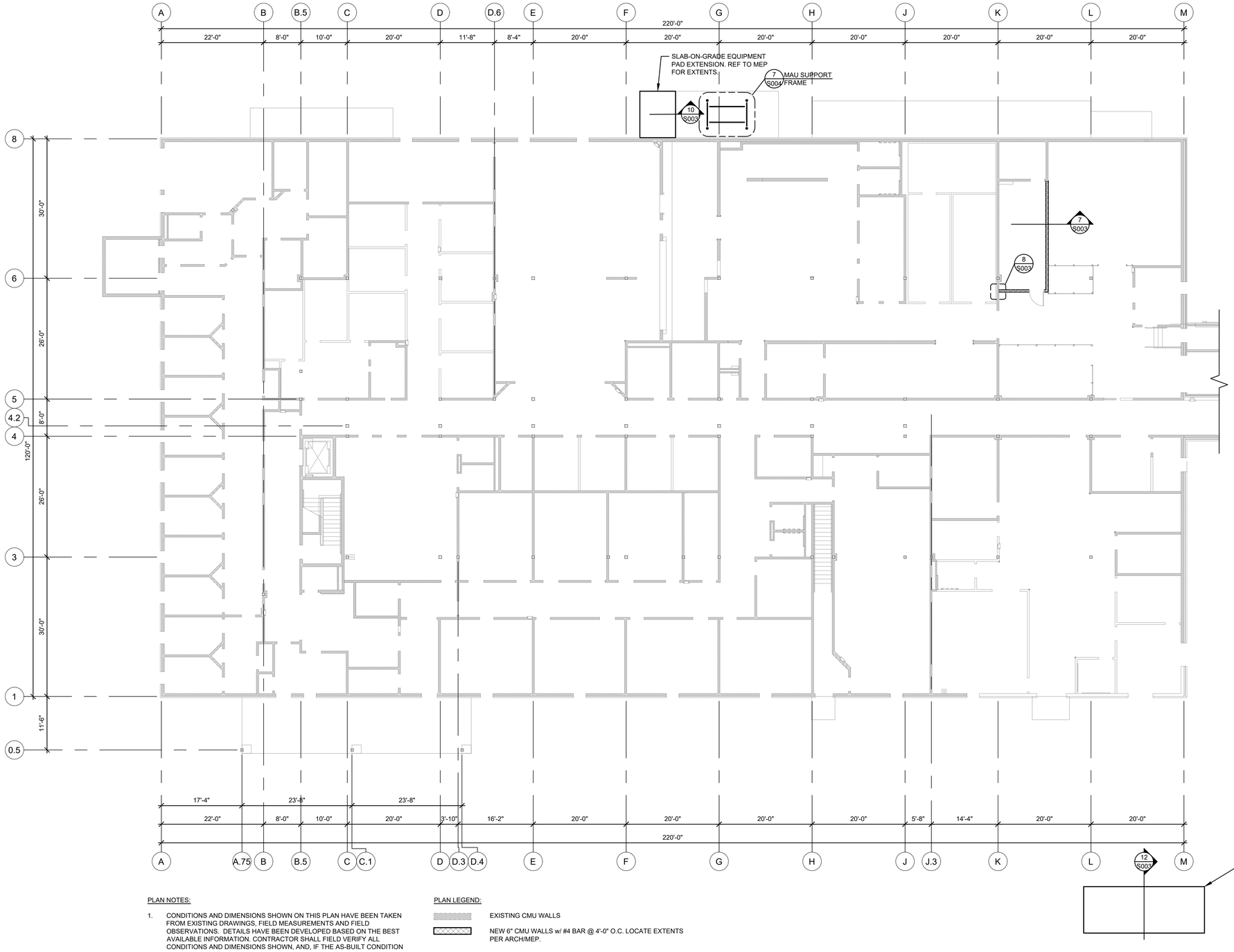
SHEET TITLE:

TYPICAL DETAILS

SHEET NUMBER:

S-004

13 OF 111 SHEETS
MARCH 21, 2023



PLAN NOTES:

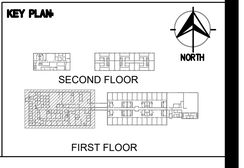
1. CONDITIONS AND DIMENSIONS SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM EXISTING DRAWINGS, FIELD MEASUREMENTS AND FIELD OBSERVATIONS. DETAILS HAVE BEEN DEVELOPED BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND DIMENSIONS SHOWN, AND, IF THE AS-BUILT CONDITION IS DIFFERENT THAN THAT REPRESENTED IN THESE DOCUMENTS, SHALL NOTIFY THE ARCHITECT AND ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
2. EXISTING SLAB-ON-GRADE IS 4" NORMAL WEIGHT CONCRETE w/ 6x6-6/6 W.W.F. FIELD VERIFY THICKNESS PRIOR TO CONSTRUCTION.
3. NEW EXTERIOR SLAB-ON-GRADE SHALL BE 4" NORMAL WEIGHT CONCRETE ON 4" OF COMPACTED CRUSHED ROCK w/ 6x6-W1.4xW1.4 W.W.F.
4. T.O. SLAB = 100'-0"

PLAN LEGEND:

EXISTING CMU WALLS

NEW 6" CMU WALLS w/ #4 BAR @ 4'-0" O.C. LOCATE EXTENTS PER ARCH/MEP.

KEY PLAN



LEVEL 1 FOUNDATION PLAN
3/32" = 1'-0"

1 S101

NORTH

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

DAVID MARK MCNAGHTEN NUMBER E-23021

03/21/2023

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DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: DLH
CHECKED BY: ZRR
DESIGNED BY:

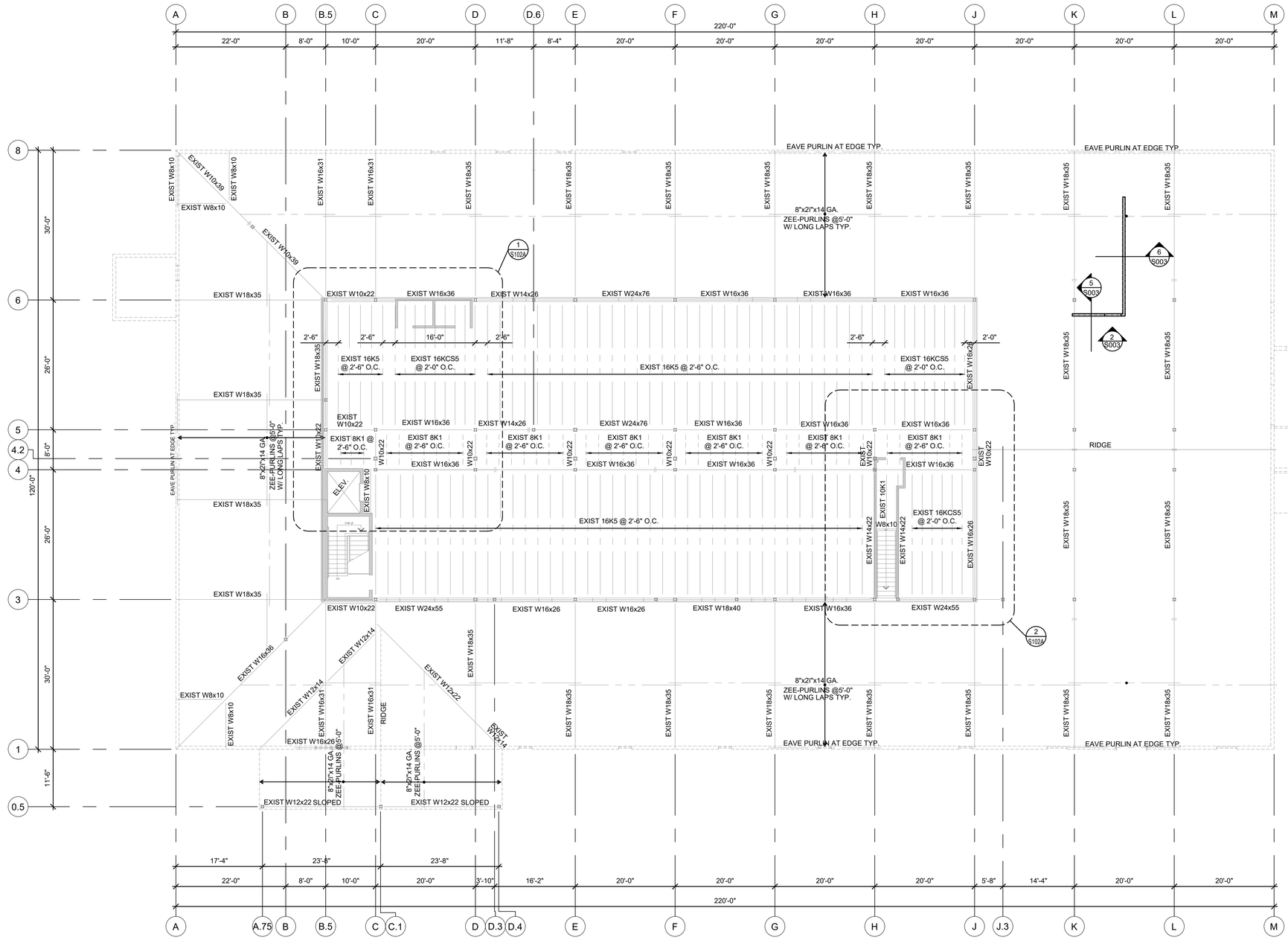
SHEET TITLE:

LEVEL 1
FOUNDATION PLAN

SHEET NUMBER:

S-101

14 OF 111 SHEETS
MARCH 21, 2023



PLAN NOTES:

1. CONDITIONS AND DIMENSIONS SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM EXISTING DRAWINGS, FIELD MEASUREMENTS AND FIELD OBSERVATIONS. DETAILS HAVE BEEN DEVELOPED BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND DIMENSIONS SHOWN, AND, IF THE AS-BUILT CONDITION IS DIFFERENT THAN THAT REPRESENTED IN THESE DOCUMENTS, SHALL NOTIFY THE ARCHITECT AND ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
2. EXISTING SLAB-ON-DECK IS 3 1/2" NORMAL WEIGHT CONCRETE ON 9/16" 25 GAGE FORM DECK.
3. T.O. LEVEL 2 SLAB = 112'-0"

PLAN LEGEND:

EXISTING CMU WALLS

NEW 6" CMU WALLS w/ #4 BAR @ 4'-0" O.C.

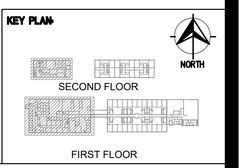
BEAM SIZE — EXIST W8x10

BEAM LEGEND

JOIST SIZE — EXIST 12K1

JOIST LEGEND

KEY PLAN



LEVEL 2 FRAMING PLAN
3/32" = 1'-0"
1 S102
NORTH

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

DAVID MARK McNAGHTEN NUMBER E-23021
03/21/2023
DAVID MARK McNAGHTEN P.E.
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ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: DLH
CHECKED BY: ZRR
DESIGNED BY:

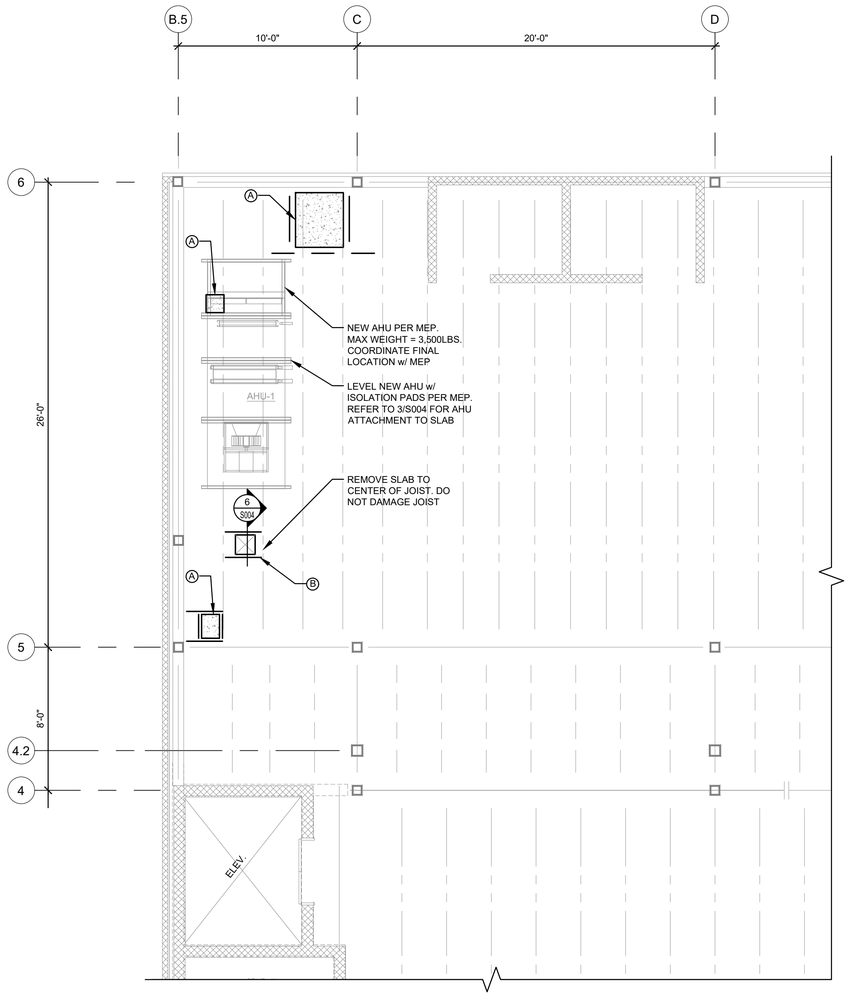
SHEET TITLE:

LEVEL 2
FRAMING PLAN

SHEET NUMBER:

S-102

15 OF 111 SHEETS
MARCH 21, 2023



PLAN REFERENCE NOTES:

(A) L3x3x1/4 FRAMING AT SLAB INFILL LOCATIONS PER 1/S004.

(B) L3x3x1/4 FRAMING AT NEW SLAB OPENING PER 6/S004.

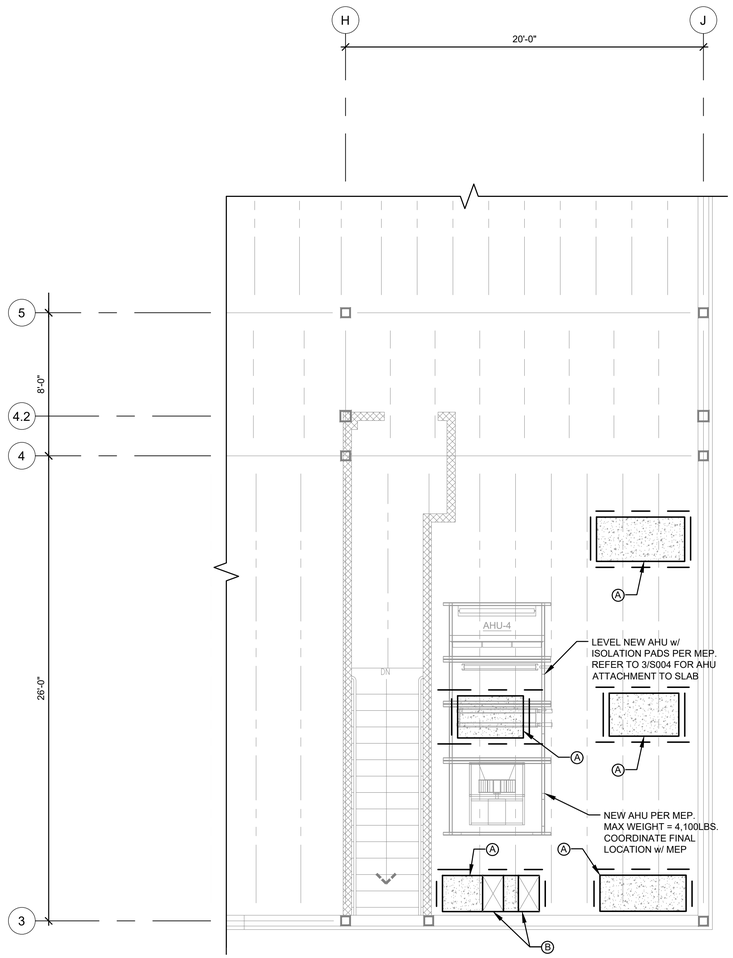
PLAN NOTES:

1. REFER TO S102 FOR EXISTING MEMBER AND SLAB INFORMATION.
2. CONTRACTOR SHALL VERIFY THE WEIGHT OF NEW AHU PRIOR TO INSTALLATION. NOTIFY EOR IF THE WEIGHT EXCEEDS THE AMOUNT SHOWN ON THE DRAWINGS.

PLAN LEGEND:

EXISTING HOLE IN SLAB-ON-DECK TO BE INFILLED PER TYPICAL DETAILS.

AHU-1 ENLARGED PLAN
1/4" = 1'-0"
1 S102A
NORTH



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(B) L3x3x1/4 FRAMING AT NEW SLAB OPENING PER 6/S004.

PLAN NOTES:

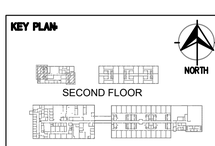
1. REFER TO S102 FOR EXISTING MEMBER AND SLAB INFORMATION.
2. CONTRACTOR SHALL VERIFY THE WEIGHT OF NEW AHU PRIOR TO INSTALLATION. NOTIFY EOR IF THE WEIGHT EXCEEDS THE AMOUNT SHOWN ON THE DRAWINGS.

PLAN LEGEND:

EXISTING HOLE IN SLAB-ON-DECK TO BE INFILLED PER TYPICAL DETAILS.

AHU-4 ENLARGED PLAN
1/4" = 1'-0"
2 S102A
NORTH

KEY PLAN:



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CAD DWG FILE:
DRAWN BY: DLH
CHECKED BY: ZRR
DESIGNED BY:

SHEET TITLE:

LEVEL 2 ENLARGED FRAMING PLANS

SHEET NUMBER:

S-102A

16 OF 111 SHEETS
MARCH 21, 2023

MECHANICAL SYMBOLS

12"x12" — EXISTING DUCTWORK TO REMAIN.

EXISTING DUCTWORK TO BE REMOVED.

12"ø — NEW ROUND RIGID DUCTWORK.

12"x12" — NEW RECTANGULAR DUCTWORK.

30"x12" — NEW FLAT OVAL DUCTWORK.

RECTANGULAR DUCTWORK TRANSITION

SQUARE TO ROUND DUCTWORK TRANSITION.

R — RISE.

D — DROP.

RECTANGULAR 90° EL WITH TURNING VANES

SUPPLY AIR DIFFUSER

RETURN AIR GRILLE

EXHAUST AIR GRILLE

AD — ACCESS DOOR.

BD — HEAVY-DUTY BACKDRAFT DAMPER

FD — FIRE DAMPER.

FSD-XXX OR FS — COMBINATION FIRE/SMOKE DAMPER. "XXX" FIRE/SMOKE DAMPER NUMBER

SD-XXX OR SD — SMOKE DAMPER. "XXX" SMOKE DAMPER NUMBER

##/R — DUCT MOUNTED SMOKE DETECTOR (SD=SUPPLY/RD=RETURN)
INDICATES DEVICE ADDRESS

MD OR — MANUAL VOLUME DAMPER.

CD-XXX OR OR MD — MOTORIZED CONTROL DAMPER. "XXX" MOTORIZED CONTROL DAMPER NUMBER

SPIN-IN TYPE DUCT TAP WITH BALANCING DAMPER.

STO-HIGH EFFICIENCY TAKE-OFF WITH INTEGRAL BALANCING DAMPER AND 2" STANDOFF

STO-HIGH EFFICIENCY TAKE-OFF

FAN TERMINAL UNIT (FTU).

VARIABLE AIR VOLUME BOX (VAV) WITH REHEAT.

H — HUMIDITY SENSOR (MOUNT AT 60"AFF UNO)

T — PNEUMATIC THERMOSTAT

TH — COMBINATION TEMPERATURE & HUMIDITY SENSOR (MOUNT AT 60" AFF UNO)

T — TEMPERATURE SENSOR (MOUNT AT 60" AFF UNO)

T — THERMOSTAT (PROVIDED WITH UNIT) (MOUNT AT 60" AFF UNO)

H — HUMIDIFIER.

F&T — F&T TRAP.

EXISTING PIPING TO REMAIN.

EXISTING PIPING TO BE REMOVED.

NEW PIPING.

VENT.

DOMESTIC COLD WATER.

HOT WATER.

HOT WATER CIRCULATION

ABOVE GRADE WASTE.

BELOW GRADE WASTE

PIPE DOWN

PIPE UP

PIPE TEE DOWN

PIPE TEE UP

PIPE CAP

BLIND FLANGE CONNECTION

CLEAN OUT (C.O.)

Y'-Y"A.F.F. — PIPE ℄ ELEV. ABOVE FINISHED FLOOR

Y'-Y"A.R. — PIPE ℄ ELEV. ABOVE ROOF

PIPE INSULATION. SEE SPECS.

MECHANICAL SYMBOLS

FLANGED CONNECTION

FLEXIBLE CONNECTION

UNION

BUTTERFLY ISOLATION VALVE

BALANCING VALVE

100 / 100 — AUTOMATIC FLOW CONTROL VALVE (NUMBER INDICATES GPM)

GATE VALVE

CHECK VALVE

BALL VALVE.

PNEUMATIC 3-WAY CONTROL VALVE

PNEUMATIC 2-WAY CONTROL VALVE

M — MOTORIZED 3-WAY CONTROL VALVE

M — MOTORIZED 2-WAY CONTROL VALVE

S — SOLENOID VALVE

ISOLATION VALVE.

PRESSURE REGULATING VALVE

VALVE IN RISE.

STRAINER.

MAV — MANUAL AIR VENT

AAV — AUTOMATIC AIR VENT

PRESSURE RELIEF VALVE

PETES PLUG (TEST PORT) WITH ISOLATION VALVE

GAUGE COCK

AUTOMATIC CLOSING FUSIBLE LINK FIRE RATED VALVE (165°F UNO)

REDUCER / INCREASER.

HOSE BIBB.

WH — WALL HYDRANT

BFP — BACKFLOW PREVENTER

FLOOR DRAIN.

PUMP (ARROW INDICATES DIRECTION OF FLOW)

MS — LEAK DETECTOR (MOISTURE SENSOR)

THERMOMETER

PRESSURE GAUGE

FIRE SUPPRESSION SPRINKLER HEAD.

DEVICE TYPE: RG-1 / DEVICE SIZE: 24"x24" — AIR DEVICE DESIGNATION.

DEVICE TYPE: SD-1 / INLET SIZE: 8"ø / CFM: 2085 — AIR DEVICE DESIGNATION.

CU / X — EQUIPMENT DESIGNATION.

— PLAN NOTE DESIGNATION.

CONNECT TO EXISTING.

2 / M13 — SECTION/ELEVATION REFERENCE NUMBER. SECTION/ELEVATION SHEET NUMBER

MECHANICAL NOTATIONS

AC	AIR CONDITIONING UNIT	HP	HORSEPOWER
ACC	AIR-COOLED CHILLER	HTG	HEATING
ACH	AIR CHANGES PER HOUR	HTR	HEATER
ACCU / CU	AIR-COOLED CONDENSING UNIT	HX	HEAT EXCHANGER
AD	ACCESS DOOR	IE	INVERT ELEVATION
AFF	ABOVE FINISHED FLOOR.	KW	KILOWATT
AL	ADJUSTABLE LOUVER	LAT	LEAVING AIR TEMPERATURE
APPROX	APPROXIMATE	LB	POUND
ARF	ABOVE RAISED FLOOR.	LD	LINEAR AIR DIFFUSER
ARCH	ARCHITECT	LWT	LEAVING WATER TEMPERATURE
AHU	AIR HANDLING UNIT	MAX	MAXIMUM
BD	BACKDRAFT DAMPER	MBH	BTUH IN THOUSANDS
BI	BACKWARD INCLINED	MFG	MANUFACTURER
BLDG	BUILDING	MIN	MINIMUM
BOD	BOTTOM OF DUCT ELEVATION	MVD	MANUAL VOLUME DAMPER
BOP	BOTTOM OF PIPE ELEVATION	NO / NC	NORMALLY OPEN / NORMALLY CLOSE
BTUH	BRITISH THERMAL UNIT/HOUR	NPW	NON-POTABLE WATER
CD	CONDENSATE DRAIN	OA	OUTSIDE AIR
CFM	CUBIC FEET PER MINUTE	OC	ON CENTER
CH	CHILLER	OD	OVERFLOW DRAIN
CHWP	CHILLED WATER PUMP	PD	PRESSURE DROP
CHWR	CHILLED WATER RETURN	PR	PRESSURE RELIEF
CHWS	CHILLED WATER SUPPLY	PRV	PRESSURE REDUCING VALVE
CI	CAST IRON	PSIG	POUNDS/SQUARE INCH, GAUGE
CIRC	CIRCULATOR	PSV	PESSURE SAFETY VALVE
CLG	CEILING	RA	RETURN AIR
CO	CLEANOUT	RD	RETURN AIR DIFFUSER
CONTR	CONTRACTOR	RD	ROOF DRAIN
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT	RG	RETURN AIR GRILLE
CRAH	COMPUTER ROOM AIR HANDLING UNIT	RH	RELATIVE HUMIDITY
CRU	COMPUTER ROOM UNIT	RM	ROOM
CWR	CONDENSER WATER RETURN	RO	REVERSE OSMOSIS WATER
CWS	CONDENSER WATER SUPPLY	RPM	REVOLUTION/MINUTE
CVR	CONSTANT VOLUME RETURN	RR	RETURN AIR REGISTER
CVS	CONSTANT VOLUME SUPPLY	RSL	REFRIGERANT SUCTION LINE
DB	DRY BULB TEMPERATURE	RLL	REFRIGERANT LIQUID LINE
DF	DRINKING FOUNTAIN	RHG	REFRIGERANT HOT GAS LINE
DIA	DIAMETER	SA	SUPPLY AIR
DIM	DIMENSION	SD	SMOKE DAMPER
DI	DEIONIZED WATER	SD	SUPPLY AIR DIFFUSER
DN	DOWN	SG	SUPPLY AIR GRILLE
DWG	DRAWING	SL	STATIONARY LOUVER
EAT	ENTERING AIR TEMPERATURE	SP	STATIC PRESSURE
EA	EXHAUST AIR	SQ	SQUARE
ED	EXHAUST AIR DIFFUSER	SQFT	SQUARE FOOT
EF	EXHAUST FAN	SR	SUPPLY AIR REGISTER
EG	EXHAUST AIR GRILLE	SS	STAINLESS STEEL
ER	EXHAUST AIR REGISTER	STD	STANDARD
ETR	EXISTING TO REMAIN	TD	TEMPERATURE DIFFERENCE
EWT	ENTERING WATER TEMPERATURE	TDH	TOTAL DYNAMIC HEAD
F	DEGREES FAHRENHEIT	TEMP	TEMPERATURE
FCU	FAN COIL UNIT	TG	TRANSFER GRILLE
FD	FIRE DAMPER	THRU	THROUGH
FD	FLOOR DRAIN	TSP	TOTAL STATIC PRESSURE
FLR	FLOOR	TSTAT	THERMOSTAT
FOS	FUEL OIL SUPPLY	TYP	TYPICAL
FOR	FUEL OIL RETURN	UH	UNIT HEATER
FO / FC	FAIL OPEN / FAIL CLOSE	UNO	UNLESS NOTED OTHERWISE
FPI	FINS PER INCH	VAV	VARIBLE AIR VOLUME
FPM	FEET PER MINUTE	VEL	VELOCITY
FSD	COMBINATION FIRE/SMOKE DAMPER	VFD	VARIABLE FREQUENCY DRIVE
FTU	FAN TERMINAL UNIT	VTR	VENT THRU ROOF
GA	GAUGE	WB	WET BULB TEMPERATURE
GAL	GALLON	WC	WATER COLUMN
GPM	GALLONS PER MINUTE	XVAV	EXISTING VAV TERMINAL UNIT
HB	HOSE BIBB	RE:1-M101	REFERENCE DESIGNATION (1 = SHEET NUMBER, M101 = DETAIL/PLAN NUMBER)
HOA	HAND-OFF-AUTO		

DEFINITIONS:

1. TO "FURNISH" IS TO SUPPLY AND DELIVER TO THE PROJECT SITE READY FOR UNLOADING. THE FURNISHER SHALL COORDINATE DELIVERY AND NEGOTIATE UNLOADING WITH INSTALLER. UNLESS STATED OTHERWISE, FURNISHED PRODUCTS AND MATERIALS SHALL BE NEW.
2. TO "INSTALL" IS TO UNLOAD, UNPACK, ASSEMBLE, ERECT, PLACE, ANCHOR, APPLY, WORK TO DIMENSION, FINISH, CURE, PROTECT, CLEAN, INTERFACE TO SERVICES, AND OTHERWISE MAKE COMPLETE AND READY FOR INTENDED USE.
3. TO "PROVIDE" IS TO "FURNISH" AND "INSTALL" AS DEFINED ABOVE.
4. TO "REINSTALL" IS TO CLEAN, REFURBISH TO FULL FUNCTIONALITY, REASSEMBLE, ERECT, PLACE, ANCHOR, FINISH, PROTECT, INTERFACE TO SERVICES, AND OTHERWISE MAKE COMPLETE AND READY FOR INTENDED USE.
5. TO "SALVAGE" IS TO REMOVE BY DECONSTRUCTING IN A CONTROLLED MANNER LEAVING PRODUCT OR MATERIAL UNDAMAGED AND READY FOR REUSE. BEFORE PROCEEDING WITH SALVAGE OPERATION, INSPECT CONDITION AND TEST FUNCTIONALITY OF PRODUCTS AND MATERIALS TO BE SALVAGED; AND INSPECT CONDITION OF ADJACENT PRODUCTS AND SURFACES NOT SLATED FOR DEMOLITION. REPORT EXISTING DEFICIENCIES OR DAMAGE AND WAIT FOR RESPONSE BEFORE PROCEEDING. IF DAMAGED WHILE SALVAGING, PRODUCT OR MATERIAL SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE.
6. TO "DEMOLISH" IS TO REMOVE WITHOUT REGARD TO CONDITION OF PRODUCT OR MATERIAL, AND RECYCLE OR LAWFULLY DISPOSE OFF-SITE AS WASTE. CONTRACTOR MAY OPT TO SALVAGE AND TAKE OWNERSHIP, BUT THE ADDITIONAL COSTS ASSOCIATED WITH SALVAGE EFFORT SHALL BE BORNE BY CONTRACTOR. BEFORE PROCEEDING WITH DEMOLITION OPERATION, INSPECT CONDITION OF ADJACENT PRODUCTS AND SURFACES NOT SLATED FOR DEMOLITION. REPORT EXISTING DAMAGE AND WAIT FOR RESPONSE BEFORE PROCEEDING. IF DAMAGED DURING DEMOLITION, ADJACENT PRODUCTS AND SURFACES SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE.
7. TO "CUT" IS TO REMOVE IN-PLACE CONSTRUCTION AS NECESSARY FOR EXECUTION OF SPECIFIED OR INDICATED WORK.
8. TO "PATCH" IS TO FIT, REPAIR AND REFINISH CONSTRUCTION AS NECESSARY FOR RESTORATION TO ORIGINAL CONDITIONS, AND FIRE AND SMOKE RATING.

COMPLIANCE:

1. APPLICABLE CODES, STANDARDS AND REGULATIONS:
   A. OSHA 29 CFR 1910 – OCCUPATIONAL SAFETY AND HEALTH STANDARDS
   B. OSHA 29 CFR 1926 – SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION
   C. INTERNATIONAL BUILDING CODE (IBC), 2015
   D. INTERNATIONAL MECHANICAL CODE (IMC) 2015
   E. UNIFORM PLUMBING CODE 2015
   F. INTERNATIONAL ENERGY CONSERVATION CODE (IEEC), 2015
   G. NATIONAL ELECTRIC CODE (NEC) 2014
2. PERFORM WORK IN ACCORDANCE WITH THE ABOVE AND ALL OTHER APPLICABLE FEDERAL, STATE AND LOCALLY ADOPTED CODES, STANDARDS AND REGULATIONS.
3. THE RESULTING FACILITY SHALL BE A SAFE WORK PLACE IN CONFORMANCE WITH OSHA 29 CFR 1910.
4. A COMPLETE LIST OF SYMBOLS AND ABBREVIATION USED BY InSite Group, Inc. ARE SHOWN ON THIS SHEET. NOT ALL SYMBOLS OR ABBREVIATIONS MAY BE USED ON THIS PROJECT.
5. DRAWINGS ARE SCHEMATIC IN NATURE AND ARE INTENDED TO DEPICT GENERAL SCOPE OF PROJECT.
6. DRAWINGS, SPECIFICATIONS, REFERENCED STANDARDS, AND SO FORTH ARE COMPLIMENTARY OF ONE ANOTHER. IN THE EVENT OF CONFLICTING REQUIREMENTS, THE ARCHITECT/ENGINEER SHALL BE CONTACTED FOR RESOLUTION.
7. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. NOTIFY AE PROJECT MANAGER OF ANY DISCREPANCIES. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS, BENDS, ELBOWS, AND SO FORTH WHICH MAY BE REQUIRED FOR PROPER INSTALLATION OF WORK. PROVIDE ADDITIONAL BENDS AND OFFSETS AS REQUIRED TO COMPLETE WORK AT NO ADDITIONAL COST TO OWNER.
8. EACH BIDDER SHALL INSPECT SITE FOR EXISTING CONDITIONS. FAILURE TO OBTAIN SUCH KNOWLEDGE SHALL NOT RELIEVE THE SUCCESSFUL BIDDER OF RESPONSIBILITY FOR ACCOMMODATIONS WITH THESE CONDITIONS AND PERFORMING WORK UNDER THIS CONTRACT.

DEMOLITION, CUTTING, PATCHING AND PENETRATIONS:

1. EXISTING EQUIPMENT, APPLIANCES, DEVICES, DUCTWORK, PIPING, CONDUIT, CIRCUITRY, AND SO FORTH NOT BEING REUSED SHALL BE DEMOLISHED IN THEIR ENTIRETY BACK TO SOURCE. DEMOLISH CONDUITS AND BOXES LEFT EMPTY BY THE REMOVAL OF THEIR CIRCUITRY. CIRCUIT BREAKERS NO LONGER REQUIRED SHALL BE LABELED AS SPARES. CAP OR OTHERWISE COVER UNUSED BOX AND PANEL OPENINGS.
2. REMOVE OR MODIFY EXISTING EQUIPMENT, APPLIANCES, DEVICES, DUCTWORK, PIPING, CONDUIT, CIRCUITRY, AND SO FORTH AS REQUIRED TO ACCOMMODATE CONSTRUCTION. REINSTALL AND RECONNECT AFFECTED EXISTING-TO-REMAIN SYSTEMS.
3. NEATLY CUT AND SEAL OPENINGS AND PENETRATIONS FOR AN AIR-TIGHT ASSEMBLY.
4. PATCH AND PAINT PENETRATIONS AND FLAWS RESULTING FROM OR REVEALED BY THE REMOVAL OF EQUIPMENT, APPLIANCE, DEVICES, DUCTWORK, PIPING, AND SO FORTH WITH MATERIALS MATCHING ADJACENT SURFACE.
5. PROVIDE ESCUTCHEON PLATES AT FINISHED WALL PIPING AND CONDUIT PENETRATIONS.
6. SEAL EXTERIOR PENETRATIONS WEATHER TIGHT.
7. CAULK AROUND FLOOR SLAB PENETRATIONS WITH 3M CP-25 FIRE BARRIER CAULK (THICKNESS AS REQUIRED AND RECOMMENDED BY MANUFACTURER) TO PROVIDE FIRE STOP AT FLOOR SLAB.
8. MAINTAIN FIRE-RATED ASSEMBLIES:
   A. MAINTAIN FIRE-RATED ASSEMBLIES WITH FIRE STOPS AT MEMBRANE AND ASSEMBLY PENETRATIONS:
      - FABRICATE AND INSTALL FIRE-STOP ACCORDING TO AN APPROPRIATE DETAIL IN THE UL FIRE RESISTANCE DIRECTORY, OR
      - PROVIDE UL-LISTED FIRE-STOP KIT.
   C. FABRICATE, INSTALL AND LABEL FIRE-STOPS IN ACCORDANCE WITH FCIA FIRESTOP MANUAL OF PRACTICE.
   D. UTILIZE 3M CP-25 FIRE-BARRIER CAULK WITH THICKNESS AS RECOMMENDED BY 3M OR AS REQUIRED BY UL DETAIL.
   E. FIRE CAULK PIPE PENETRATIONS.

EQUIPMENT:

1. EQUIPMENT SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY APPROVED BY OSHA.
2. THE CONTRACTOR SHALL STORE AND PROTECT FROM DAMAGE ALL EQUIPMENT AND MATERIALS AFTER DELIVERY TO THE JOB SITE. COVER WITH WATERPROOF, TEAR-RESISTANT, HEAVY TARP OR POLYETHYLENE PLASTIC AS REQUIRED TO PROTECT FROM PLASTER, DIRT, PAINT, WATER, OR PHYSICAL DAMAGE.
3. INSTALL EQUIPMENT WHILE MAINTAINING CLEARANCES AS RECOMMENDED BY MANUFACTURER AND REQUIRED BY APPLICABLE CODES AND STANDARDS.
4. FOREIGN SYSTEMS CANNOT BE LOCATED WITHIN EQUIPMENT SPACE DEDICATED TO ELECTRICAL SWITCHBOARDS, SWITCHGEAR, PANELBOARDS, AND MOTOR CONTROL CENTERS. FOREIGN SYSTEMS MAY BE LOCATED ABOVE THIS EQUIPMENT WHERE EQUIPMENT IS PROTECTED FROM CONDENSATION, LEAKS AND BREAKS. REFER TO NEC 110.26(E).
5. PROVIDE CONNECTIONS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND APPLICABLE CODES AND STANDARDS. COORDINATE CONNECTION REQUIREMENTS FOR FINAL EQUIPMENT SELECTIONS WITH OTHER AFFECTED TRADES.
6. VERIFY FINAL CONNECTION SIZES WITH MANUFACTURER EQUIPMENT AND PROVIDE REQUIRED ISOLATION VALVES, CHECK VALVES, UNIONS, GAUGES, AND SO FORTH FOR A COMPLETE INSTALLATION.
7. PROVIDE ELECTRICAL CIRCUITS AND OVER-CURRENT PROTECTION IN ACCORDANCE WITH MANUFACTURER'S NAMEPLATE.
8. MATCH TYPE, SIZE AND MATERIAL OF EXISTING PIPING, DEVICES, AND SO FORTH, WHERE APPLICABLE.
9. PROVIDE NECESSARY HARDWARE FOR A COMPLETE WORKING INSTALLATION OF EQUIPMENT, APPLIANCE, DEVICES, DUCTWORK, PIPING, CIRCUITRY, AND SO FORTH.
10. PROVIDE ENGRAVED PLASTIC LAMINATE NAMEPLATES ON AFFECTED NEW AND EXISTING EQUIPMENT. SURVEY BUILDING TO ENSURE THAT NAMES ARE UNIQUE AND CONSISTENT WITH EXISTING CONVENTIONS.
11. DRAWINGS ARE DESIGNED FOR THE MANUFACTURER'S MATERIALS, EQUIPMENT, OR SERVICES NAMED ON PLANS AND ANY CHANGES AND THEIR ASSOCIATED COSTS REQUIRED TO ACCOMMODATE OTHER APPROVED EQUIVALENT MATERIAL OR EQUIPMENT AS WELL AS SPACE REQUIREMENTS FOR THE OTHER APPROVED EQUIVALENT MUST BE ASSUMED BY THE CONTRACTOR.

MEP GENERAL NOTES:

1. COORDINATE ALL WORK WITH OWNER, ENGINEER, EQUIPMENT MANUFACTURERS, AND ALL OTHER TRADES.
2. THE OWNER AND ENGINEER ARE NOT RESPONSIBLE FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR TO MEANS, METHODS, TECHNIQUES, CONSTRUCTION SEQUENCES, OR PROCEDURES REQUIRED TO PERFORM HIS/HER WORK
3. COORDINATE ALL CONNECTION SIZES AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER. ALL PIPING SHALL BE SIZED AND INSTALLED PER MANUFACTURER'S WRITTEN RECOMMENDATIONS.
4. OWNER EQUIPMENT LAYOUT IS SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS OF EQUIPMENT.
5. MAINTAIN AREAS FREE OF DEBRIS ACCUMULATION. KEEP WORK AREAS NEAT AND ORDERLY AS MUCH AS REASONABLY POSSIBLE.
6. SUBSTITUTIONS: ALL PRODUCTS PROPOSED FOR USE, INCLUDING THOSE SPECIFIED BY REQUIRED ATTRIBUTES AND PERFORMANCE, SHALL REQUIRE APPROVAL BY THE ENGINEER BEFORE BEING INCORPORATED INTO THE WORK. WHERE THE PHRASE "OR EQUAL" OR "APPROVED EQUAL" OCCURS IN THE CONTRACT DOCUMENTS, DO NOT ASSUME THAT MATERIALS, EQUIPMENT, OR METHODS WILL BE APPROVED AS EQUAL UNLESS THE ITEM HAS BEEN SPECIFICALLY APPROVED FOR THIS WORK BY THE ENGINEER / ARCHITECT.
7. SHOP DRAWINGS, SAMPLES, AND COORDINATION DRAWINGS: THE CONTRACTOR SHALL SUBMIT FOR APPROVAL, ELECTRONIC COPIES OF MANUFACTURER'S SHOP DRAWINGS FOR ALL MAJOR ITEMS OF EQUIPMENT TO BE FURNISHED UNDER THIS CONTRACT, AND ALL MAJOR ITEMS REQUIRING COORDINATION BETWEEN CONTRACTORS. BEFORE SUBMITTING SHOP DRAWINGS AND MATERIAL LISTS, VERIFY THAT ALL THE EQUIPMENT IS MUTUALLY COMPATIBLE AND SUITABLE FOR INTENDED USE, AND SHALL FIT THE AVAILABLE SPACE AND ALLOW AMPLE ROOM FOR MAINTENANCE. THE ENGINEER'S CHECKING AND SUBSEQUENT APPROVAL OF SUCH SHOP DRAWINGS SHALL NOT RELIEVE THE RESPONSIBILITY FOR ERRORS IN DIMENSIONS, DETAILS, SIZE OF MEMBERS, QUANTITIES, OMISSIONS OF COMPONENTS OR FITTINGS, OR FOR COORDINATING ITEMS WITH ACTUAL BUILDING CONDITIONS.
8. ACCEPTANCE OF THE WORK SHALL BE SUBJECT TO THE ENGINEERS APPROVAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. SHOP DRAWINGS SHALL INCLUDE MANUFACTURERS DETAIL DRAWINGS OF EQUIPMENT AND MATERIAL AND CONTRACTORS SHOP DETAILS FOR INSTALLATION OF MATERIAL AND EQUIPMENT. DESCRIPTIVE LITERATURE SHALL INCLUDE CATALOG DATA COVERING DESIGN, SIZE AND CAPACITY OF MATERIAL AND EQUIPMENT. SUBMITTALS SHALL INCLUDE THE MANUFACTURERS MODEL NUMBER, CAPACITY, PERFORMANCE DATA, ELECTRICAL CHARACTERISTICS, ETC., ALL CLEARLY SHOWN AND MARKED FOR THE SPECIFIC ITEM OF EQUIPMENT BEING FURNISHED ON THIS PROJECT.
9. RECORD DRAWINGS: THE CONTRACTOR SHALL KEEP DAY-TO-DAY RECORD OF ALL CHANGES OR VARIATIONS MADE FROM THE CONTRACT DOCUMENTS AND AT THE END OF THE PROJECT SHALL PROVIDE THE ENGINEER WITH REPRODUCIBLE SETS AS REQUESTED.

MECHANICAL GENERAL NOTES:

1) VERIFY ALL DIMENSIONS & CONDITIONS IN THE FIELD. NOTIFY AE PROJECT MANAGER OF ANY DISCREPANCIES. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS, BENDS, ELBOWS, ETC., WHICH MAY BE REQUIRED FOR PROPER INSTALLATION OF WORK. PROVIDE ADDITIONAL BENDS AND/OR OFFSETS AS REQUIRED TO COMPLETE WORK AT NO ADDITIONAL COST.
2) PROVIDE TURNING VANES IN ALL ELBOWS THAT CHANGE THE AIR FLOW DIRECTION MORE THAN 30 DEGREES OR USE RADIUS ELBOWS.
3) ALL DUCTWORK CONNECTIONS TO AIR HANDLING UNITS, EXHAUST FANS, AND GENERATORS SHALL BE FLEXIBLE CONNECTIONS, IN ACCORDANCE WITH ASHRAE, IMC, ETC.
4) ALL DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH ASHRAE, IMC, SMACNA, ETC.
5) ALL DUCTWORK SHOWN ON PLANS SHALL BE ROUTED AS HIGH AS POSSIBLE, UNO.
6) UNLESS INDICATED OTHERWISE ALL BRANCH DUCTS SERVING DIFFUSERS ARE THE SAME SIZE AS THE DIFFUSER NECK. ENLARGE DUCTS AS NECESSARY FOR SUPPLY GRILLE APPLICATIONS TO ALLOW FOR INVERTED DUCT COLLAR CONNECTION.
7) CONTRACTOR SHALL COORDINATE DUCTWORK WITH PLUMBING PIPING ELEVATIONS TO ALLOW FOR PROPER SLOPE OF DRAINAGE PIPING. WHERE NECESSARY PROVIDE SLEEVE THRU DUCTWORK TO ALLOW FOR PIPING TO PASS THRU DUCT. CONTRACTOR TO CONTACT THE ENGINEER FOR DIRECTION PRIOR TO PROVIDING SLEEVE THRU DUCT.
8) PROVIDE ALL NECESSARY JACK SHAFTING AND ACTUATORS FOR DAMPERS AS NOTED ON PLANS. ASSEMBLY SHALL OPERATE SMOOTHLY AND FREELY.
9) ALL CONTROL DAMPERS, SMOKE DAMPERS, FIRE-SMOKE DAMPERS, ETC. SHALL BE ULTRA LOW LEAKAGE AIRFOIL BLADE DAMPERS WITH EDGE AND JAMB SEALS.
12) ALL DUCT MOUNTED ACCESS DOORS SHALL BE PROVIDED IN LOCATIONS SHOWN ON PLANS ON ALL FIRE/SMOKE DAMPERS, SMOKE DAMPERS, FIRE DAMPERS, CONTROL DAMPERS, MANUAL VOLUME DAMPERS, AND DUCT MOUNTED EQUIPMENT (HEATERS, HUMIDIFIERS, VAV BOXES, FILTER BOXES, ETC). ALL ACCESS DOORS SHALL BE PROVIDED WITH HINGES, LOCKS, AND VISION PANELS.
13) ALL DUCTWORK SHALL BE IN CONFORMANCE WITH CURRENT SMACNA STANDARDS RELATIVE TO GAUGE, BRACING, JOINTS, ETC. SUPPORT HORIZONTAL RUNS OF DUCT FROM THREADED ROD AND UNISTRUT HANGERS ON CENTERS NOT TO EXCEED 8'-0". DO NOT SUPPORT CEILING GRID, PIPES, EQUIPMENT, ETC. FROM DUCTWORK/DUCTWORK SUPPORTS. HVAC PLAN SIZES INDICATE CLEAR INSIDE DIMENSIONS. SHEET METAL SIZES SHALL BE INCREASED ACCORDINGLY.
14) ALL DUCTWORK SHALL BE SEALED BY USING DUCT SEALANT AS RECOMMENDED BY MANUFACTURER. DUCT SEALANT SHALL BE NON-HARDENING, WATER RESISTANT, NON-COMBUSTIBLE, LIQUID OR MASTIC OR WITH TAPE AS RECOMMENDED BY MANUFACTURER. ALL SEALANTS SHALL HAVE APPROVED FIRE RATING FOR PLENUM APPLICATION AS REQUIRED BY CODE AUTHORITY.
15) ALL RECTANGULAR AND SQUARE MANUAL VOLUME DAMPERS SHALL BE GALVANIZED STEEL OPPOSED BLADE WITH 2" STANDOFF BRACKET AND LOCKING HAND QUADRANT. RUSKIN MODEL MD15 OR MD35 OR APPROVED EQUIVALENT.
16) ALL ROUND MANUAL VOLUME DAMPERS SHALL BE GALVANIZED STEEL WITH 2" STANDOFF BRACKET AND LOCKING HAND QUADRANT. RUSKIN MODEL MDRS25 OR APPROVED EQUIVALENT.

MECHANICAL PIPING AND PLUMBING GENERAL NOTES:

1) FIELD VERIFY EXACT ROUTING. ALL PIPING SHALL BE RAN PARALLEL OR PERPENDICULAR TO BUILDING LINES AND AS HIGH AS POSSIBLE. PROVIDE ALL REQUIRED OFFSETS AND TRANSITIONS AS NECESSARY TO AVOID EXISTING OBSTRUCTIONS.
2) SOME PIPING MAY HAVE BEEN SHOWN OFFSET FOR CLARITY.
3) VERIFY ALL DIMENSIONS & CONDITIONS IN THE FIELD. NOTIFY AE PROJECT MANAGER OF ANY DISCREPANCIES. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS, BENDS, ELBOWS, ETC., WHICH MAY BE REQUIRED FOR PROPER INSTALLATION OF WORK. PROVIDE ADDITIONAL BENDS AND/OR OFFSETS AS REQUIRED TO COMPLETE WORK AT NO ADDITIONAL COST.
4) ALL WASTE PIPING LESS THAN 3" SHALL SLOPE 1/4" PER 1'-0". ALL WASTE PIPING EQUAL TO OR GREATER THAN 3" SHALL SLOPE 1/8" PER 1'-0".
5) ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH ESCUTCHEON PLATES FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR.
6) CONTRACTOR SHALL FURNISH AND INSTALL PROPER FREESTANDING INTERNAL WALL SUPPORTS FOR ALL WALL FIXTURES TO PREVENT PULLOUT FROM WALL. PLUMBING CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR FINAL CLEANING AND OPERATION OF INSTALLED FIXTURES AND CAULKING OF FIXTURES TO WALLS.

GENERAL PHASING SEQUENCE

IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH OWNER AND PROVIDE A COMPLETE PHASING PLAN FOR THIS PROJECT. THIS ANTICIPATED PROJECT PHASING PLAN IS PROVIDED AS A REFERENCE ONLY FOR GENERAL PHASING INTENT, AND DOES NOT INCLUDE ALL STEPS AND PROCEDURES REQUIRED TO COMPLETE THE PROJECT. THE CONTRACTOR AND SUB-CONTRACTORS SHALL COORDINATE SCOPE OF WORK BASED ON CONTRACTORS PAST EXPERIENCE TO ENSURE THAT ALL OWNER'S REQUIREMENTS FOR TEMPORARY EQUIPMENT IS INCLUDED IN THE BID. CONTRACTOR SHALL COORDINATE SEQUENCING WITH OWNER AND MINIMIZE HEATING/COOLING DOWNTIME. DOWNTIME SHALL BE COORDINATED WITH WEATHER FORECAST AND CONTRACTOR SHALL PROVIDE TEMPORARY HEATING/COOLING AS NECESSARY IF DOWNTIME OF EQUIPMENT OCCURS DURING EXTREME CONDITIONS.

GENERAL PHASING SEQUENCE

PHASE 1:
1) INSTALL CH-1, B-1, B-2, AND ASSOCIATED EQUIPMENT LOCATED IN BOILER ROOM(AIR SEPARATOR, PUMPS, ETC.)
2) INSTALL CHILLED WATER AND HOT WATER MAIN HEADER PIPING AND ASSOCIATED VALVES AND TAPS.
3) INSTALL BAS BACKBONE AND CENTRAL UTILITY CONTROLS.

PHASE 2:
1) EXTEND CHW/HHW PIPES TO WEST AND EAST OF BUILDING, AND INCLUDE ALL BRANCH VALVES.
2) EXTEND CONTROLS BACKBONE WEST AND EAST OF BUILDING.

PHASE 3:
1) REPLACE OLD WEST OF BUILDING AHUS WITH NEW AHUS ONE AT A TIME.

PHASE 4:
1) REPLACE OLD EAST OF BUILDING AHUS WITH NEW AHUS ONE AT A TIME.

NOTE:
ANY WORK IN HOUSING UNITS MUST BE COORDINATED WITH OWNER AND PROVIDE A MINIMUM OF (2) WEEKS NOTICE PRIOR TO PERFORMING THE WORK.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI — CURTIS L. BRUNGARDT — NUMBER PE-2003016693 — PROFESSIONAL ENGINEER — 3-21-2023

MEP ENGINEER:

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION: DATE:
REVISION: DATE:
REVISION: DATE:

ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

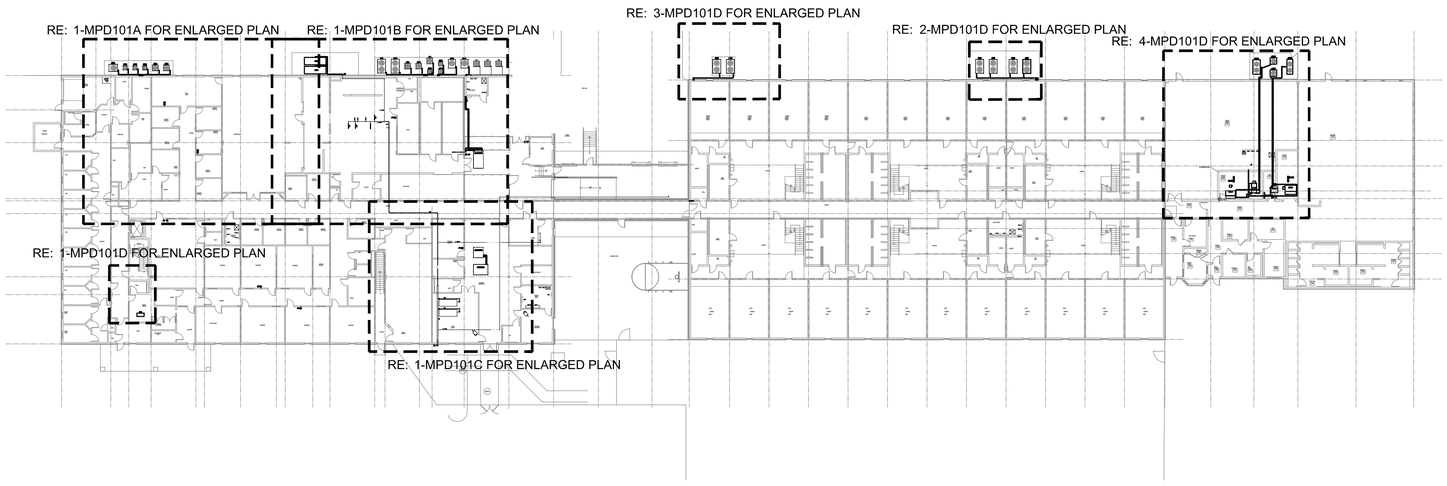
SHEET TITLE:

MECHANICAL SYMBOLS AND GENERAL NOTES

SHEET NUMBER:

M-001

17 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 1 OVERALL MECHANICAL PIPING DEMO PLAN
SCALE: 1/32" = 1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
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ISSUE DATE: 03/21/2023

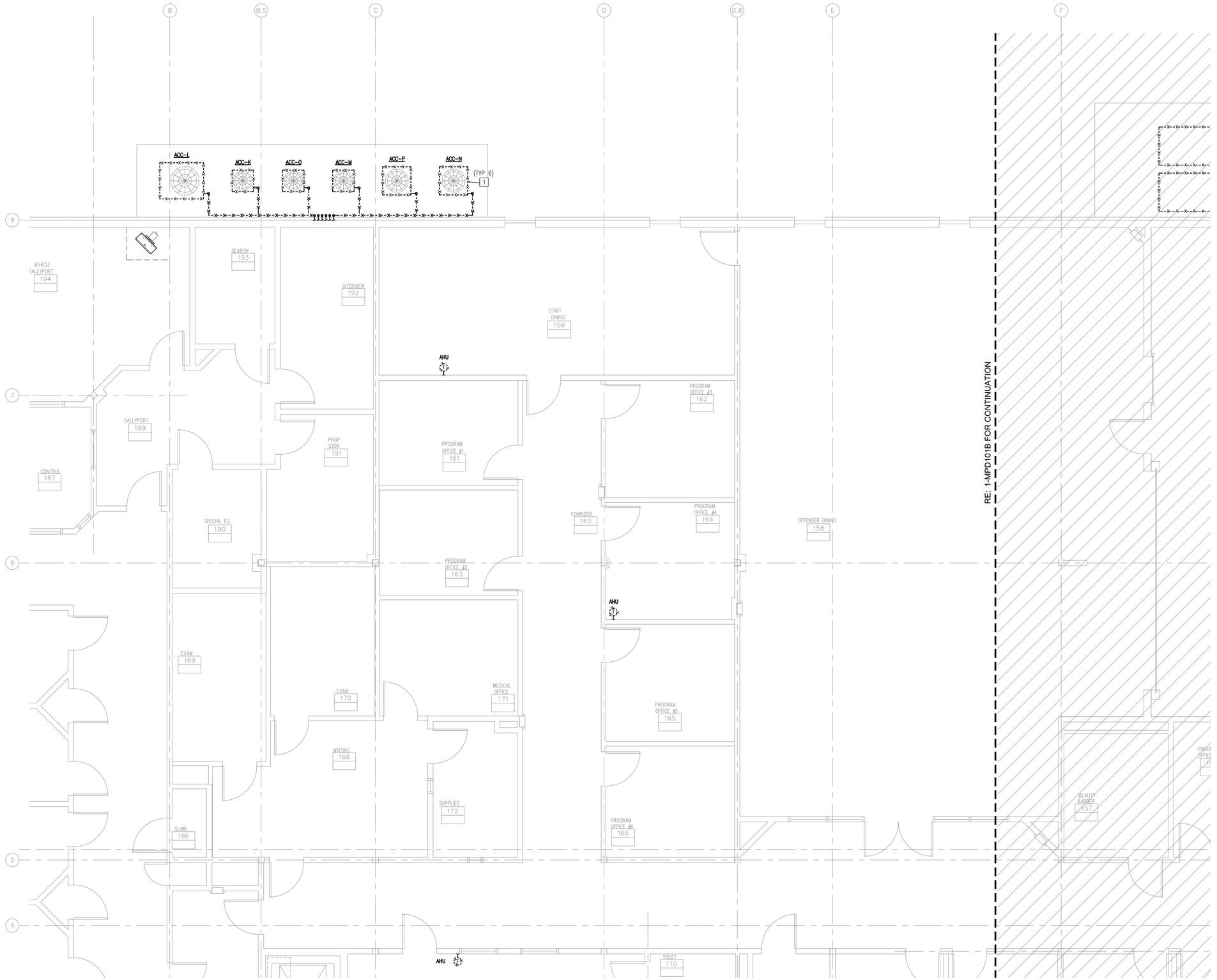
CAD DWG FILE:
DRAWN BY: JCM
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1 OVERALL MECH PIPING DEMO PLAN

SHEET NUMBER:

MPD101



KEYED NOTES:

1 REMOVE EXISTING REFRIGERANT PIPING IN ITS ENTIRETY INCLUDING SUPPORTS, HANGERS, MOUNTING BRACKETS, ETC. AS SHOWN. PATCH REFRIGERANT PIPING WALL PENETRATIONS.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

1 LEVEL 1 MECHANICAL PIPING DEMO PLAN

SCALE: 1/4" = 1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
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DRAWN BY: JCM
CHECKED BY: MRB
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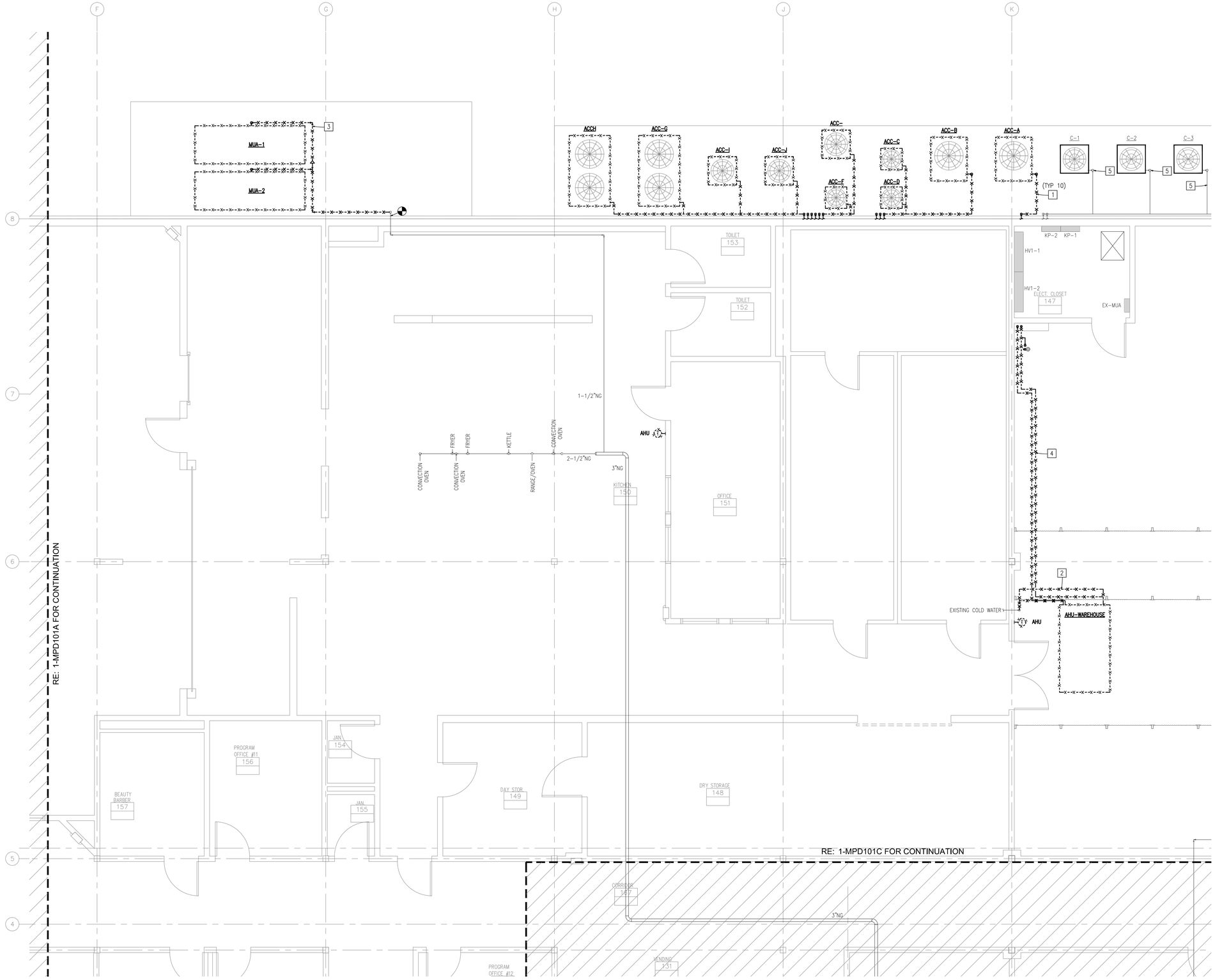
SHEET TITLE:

LEVEL 1
MECH PIPING
DEMO PLAN

SHEET NUMBER:

MPD101A

19 OF 111 SHEETS
MARCH 21, 2023



1 **LEVEL 1 MECHANICAL PIPING DEMO PLAN**
SCALE: 1/8" = 1'-0"

KEYED NOTES:

1. REMOVE EXISTING REFRIGERANT PIPING IN ITS ENTIRETY INCLUDING SUPPORTS, HANGERS, MOUNTING BRACKETS, ETC. AS SHOWN. PATCH REFRIGERANT PIPING WALL PENETRATIONS.
2. REMOVE EXISTING WATER PIPING SERVING SUSPENDED WAREHOUSE UNIT AS SHOWN. RETAIN EXISTING COLD WATER PIPING IN ROOM FOR MAKEUP WATER TO BOILER/CHILLER SYSTEM. RE:MP101B FOR CONNECTION TO NEW PIPING.
3. REMOVE EXISTING GAS PIPING SERVING MAKEUP AIR UNITS AS SHOWN. RE:MP101B FOR CONNECTION TO NEW PIPING.
4. REMOVE EXISTING CONDENSATE PIPING FROM SUSPENDED WAREHOUSE UNIT IN ITS ENTIRETY INCLUDING SUPPORTS, HANGERS, MOUNTING BRACKETS, ETC. AS SHOWN.
5. EXISTING CONDENSING UNITS AND REFRIGERANT PIPING TO REMAIN.

GENERAL NOTES:
1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

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CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1
MECH PIPING
DEMO PLAN

SHEET NUMBER:

MPD101B

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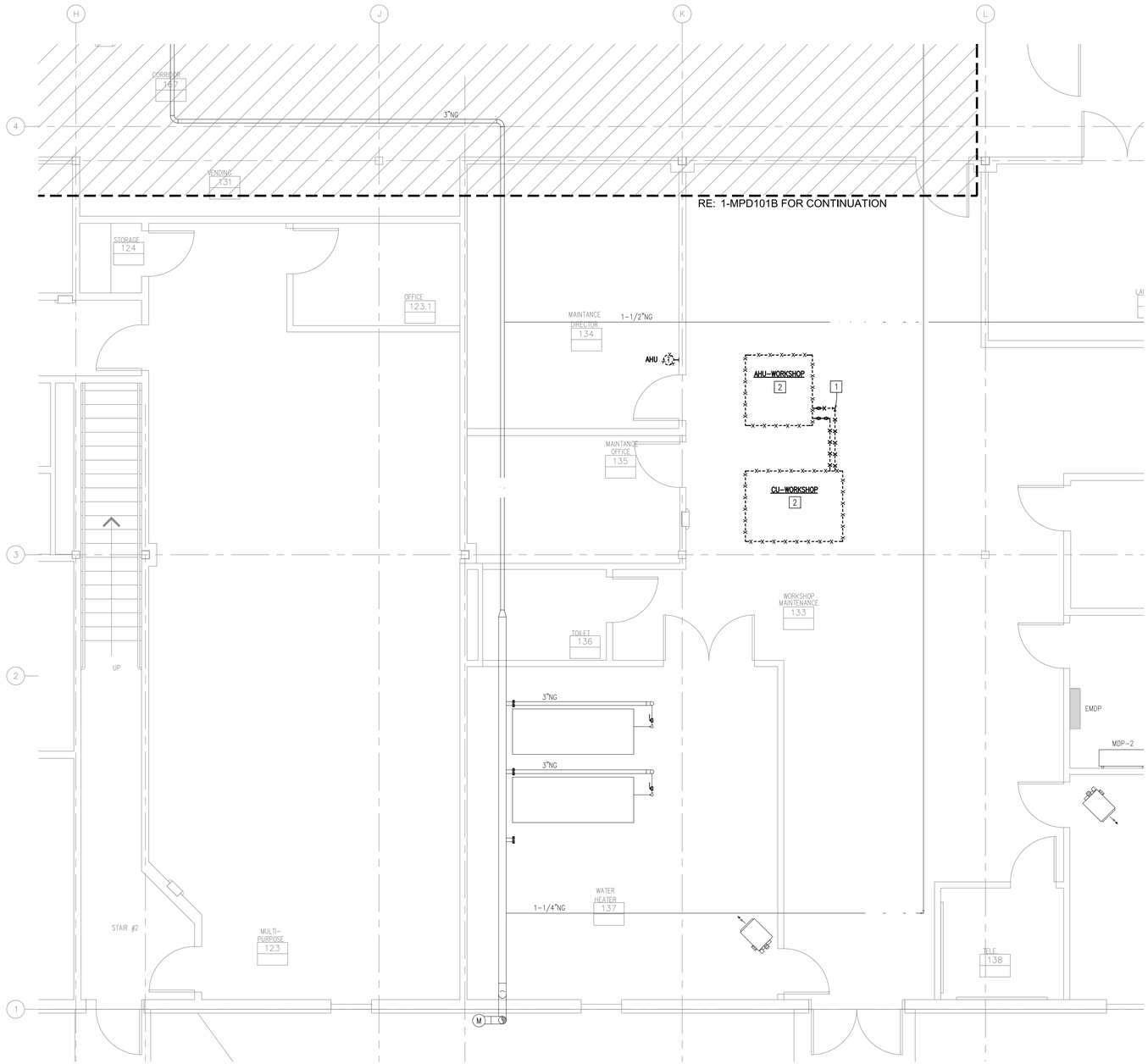
MARCH 21, 2023



1 LEVEL 1 MECHANICAL PIPING DEMO PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. REMOVE EXISTING PIPING SERVING AHU LOCATED IN WORKSHOP BACK TO ASSOCIATED CONDENSING UNIT.
2. REMOVE EXISTING CONDENSATE PIPING ASSOCIATED WITH AHUS SCHEDULED TO BE REMOVED IN ITS ENTIRETY INCLUDING SUPPORTS, HANGERS, MOUNTING BRACKETS, ETC. AS SHOWN.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

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CAD DWG FILE:
DRAWN BY: JCM
CHECKED BY: MRB
DESIGNED BY: MRB

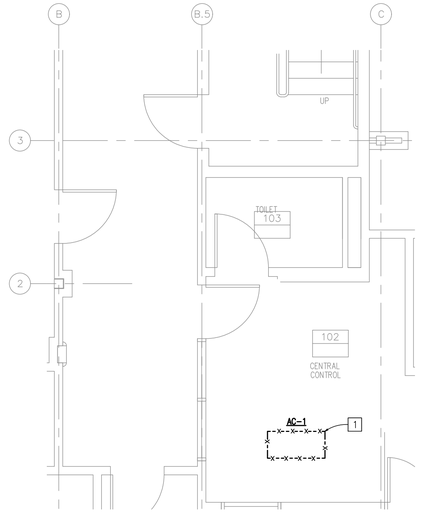
SHEET TITLE:

LEVEL 1
MECH PIPING
DEMO PLAN

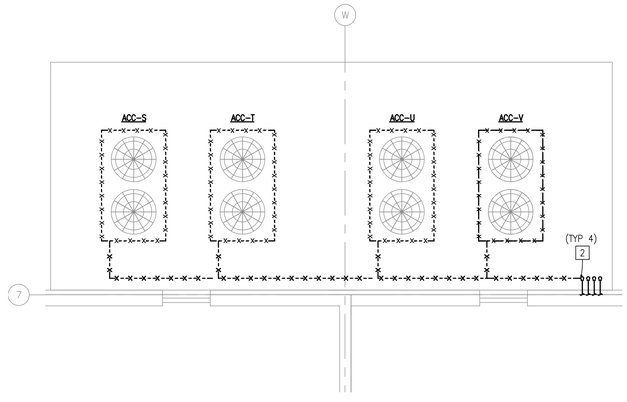
SHEET NUMBER:

MPD101C

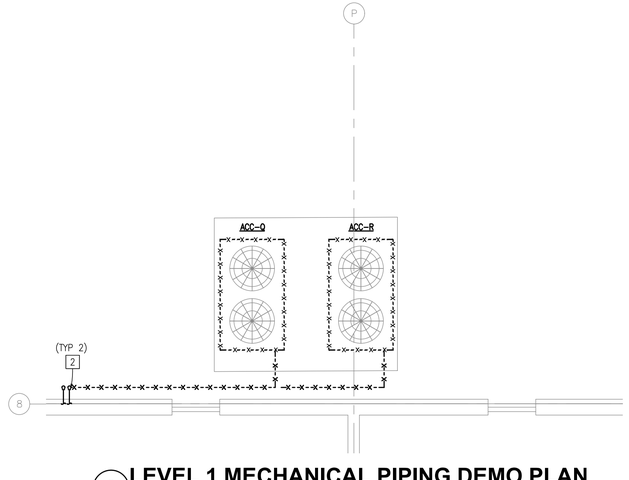
21 OF 111 SHEETS
MARCH 21, 2023



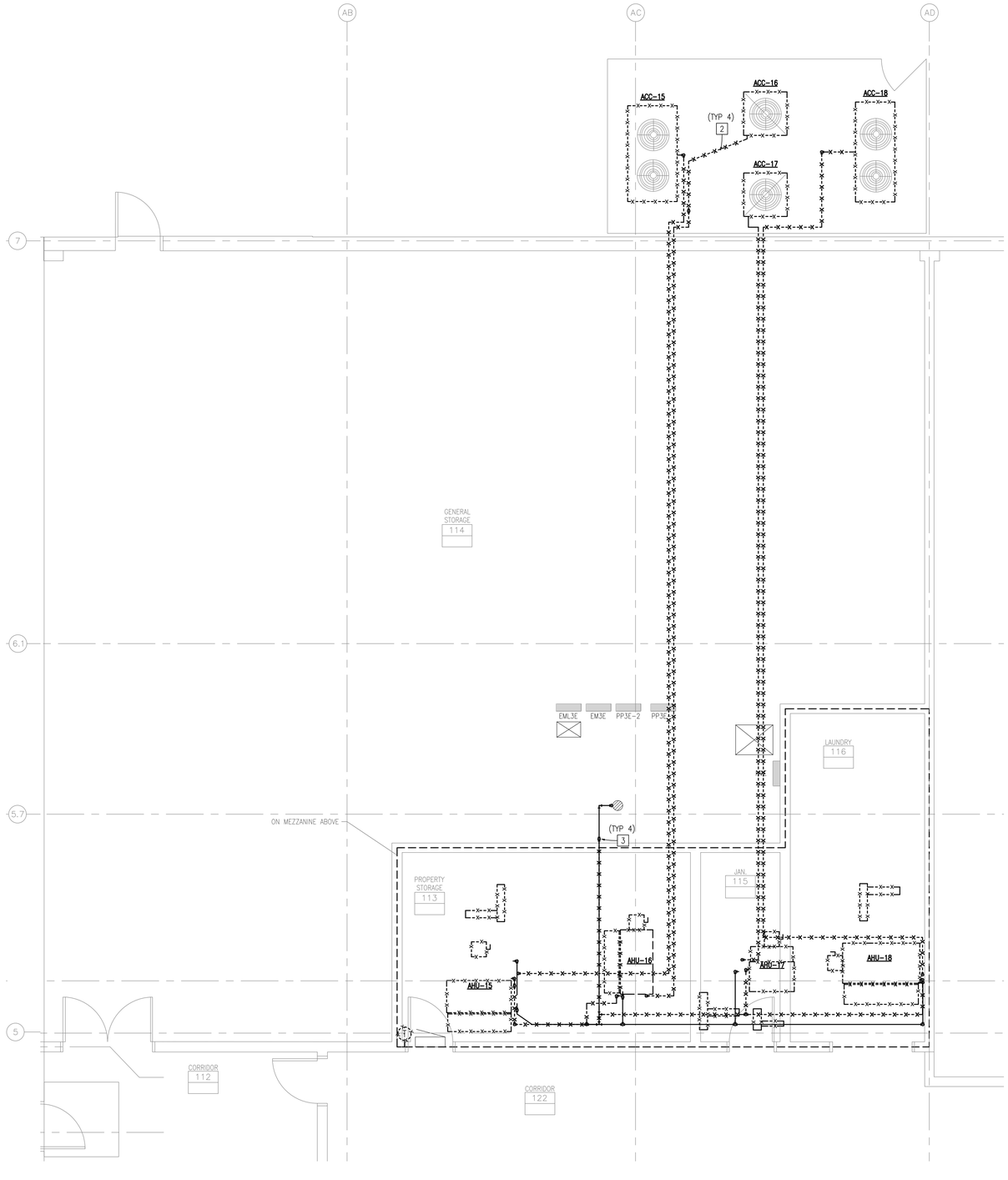
1 LEVEL 1 MECHANICAL PIPING DEMO PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 1 MECHANICAL PIPING DEMO PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 1 MECHANICAL PIPING DEMO PLAN
SCALE: 1/4" = 1'-0"



4 LEVEL 1 MECHANICAL PIPING DEMO PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. REMOVE EXISTING PIPING ASSOCIATED WITH EQUIPMENT SCHEDULED TO BE REMOVED IN ITS ENTIRETY INCLUDING SUPPORTS, HANGERS, MOUNTING BRACKETS, ETC. AS SHOWN. PATCH PIPING WALL PENETRATIONS.
2. REMOVE EXISTING REFRIGERANT PIPING IN ITS ENTIRETY INCLUDING SUPPORTS, HANGERS, MOUNTING BRACKETS, ETC. AS SHOWN. PATCH REFRIGERANT PIPING WALL PENETRATIONS.
3. REMOVE EXISTING CONDENSATE PIPING ASSOCIATED WITH AHUS SCHEDULED TO BE REMOVED IN ITS ENTIRETY INCLUDING SUPPORTS, HANGERS, MOUNTING BRACKETS, ETC. AS SHOWN.

GENERAL NOTES:
1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

STATE OF MISSOURI
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DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
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ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: JCM
CHECKED BY: MRB
DESIGNED BY: MRB

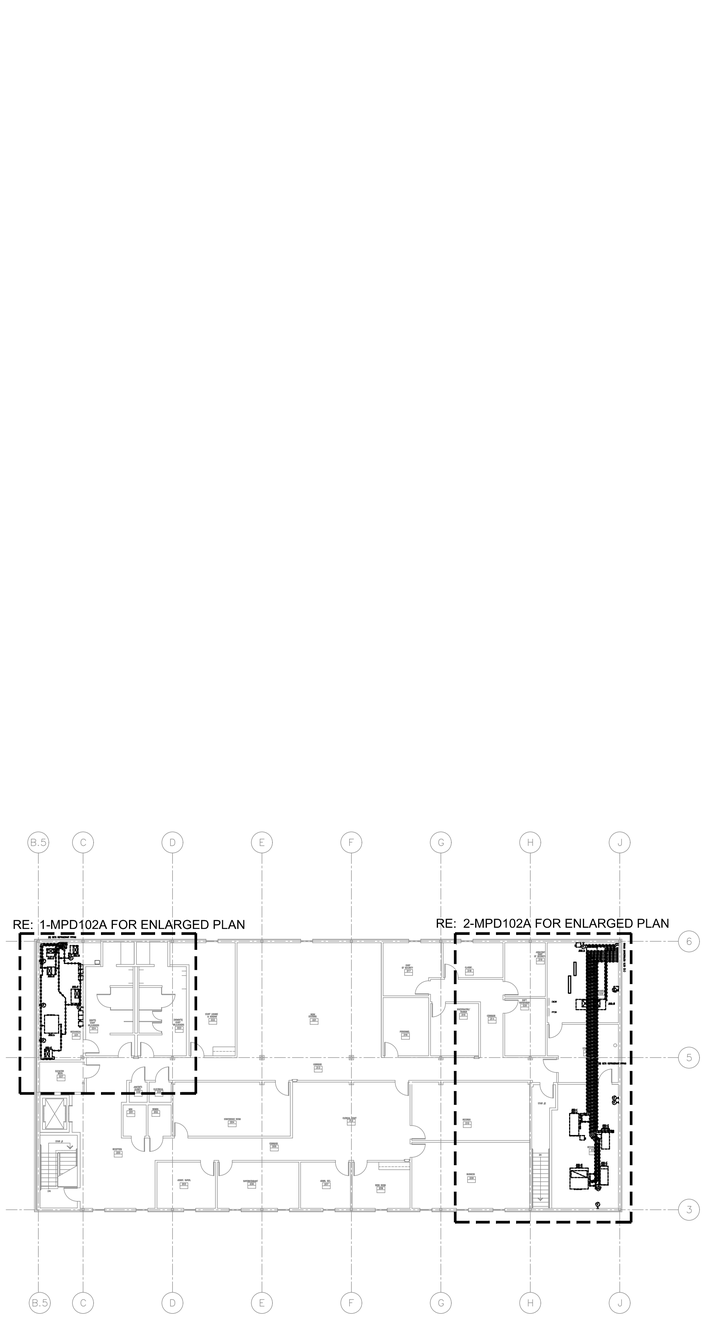
SHEET TITLE:

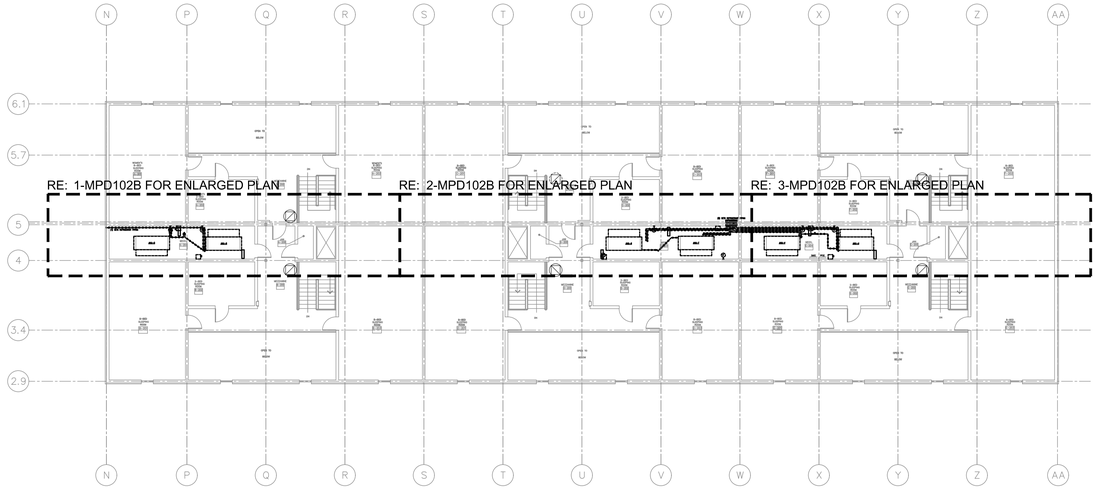
LEVEL 1
MECH PIPING
DEMO PLAN

SHEET NUMBER:

MPD101D

22 OF 111 SHEETS
MARCH 21, 2023





1 LEVEL 2 OVERALL MECHANICAL PIPING DEMO PLAN
SCALE: 1/16" = 1'-0"

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DESIGNED BY: MRB

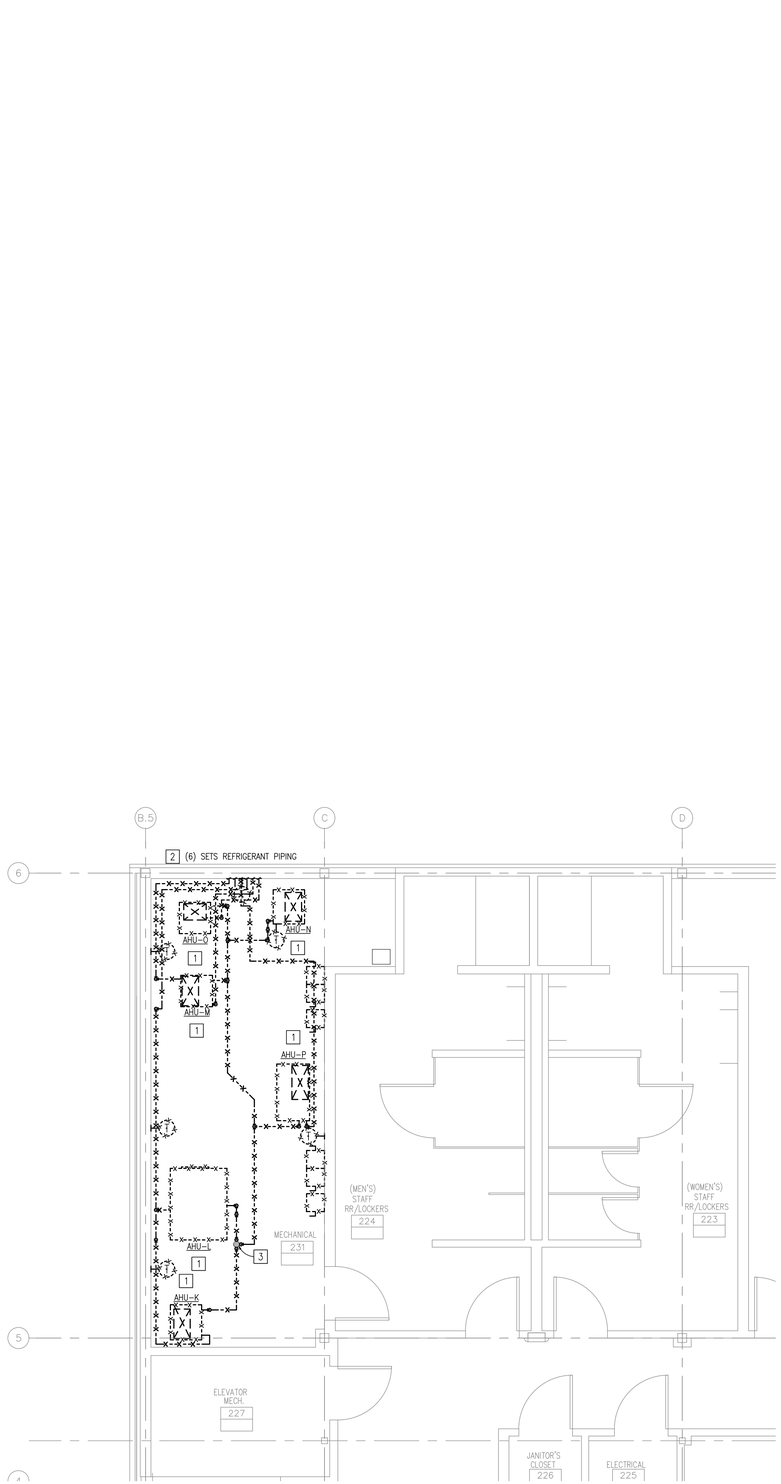
SHEET TITLE:

LEVEL 2 OVERALL MECH PIPING DEMO PLAN

SHEET NUMBER:

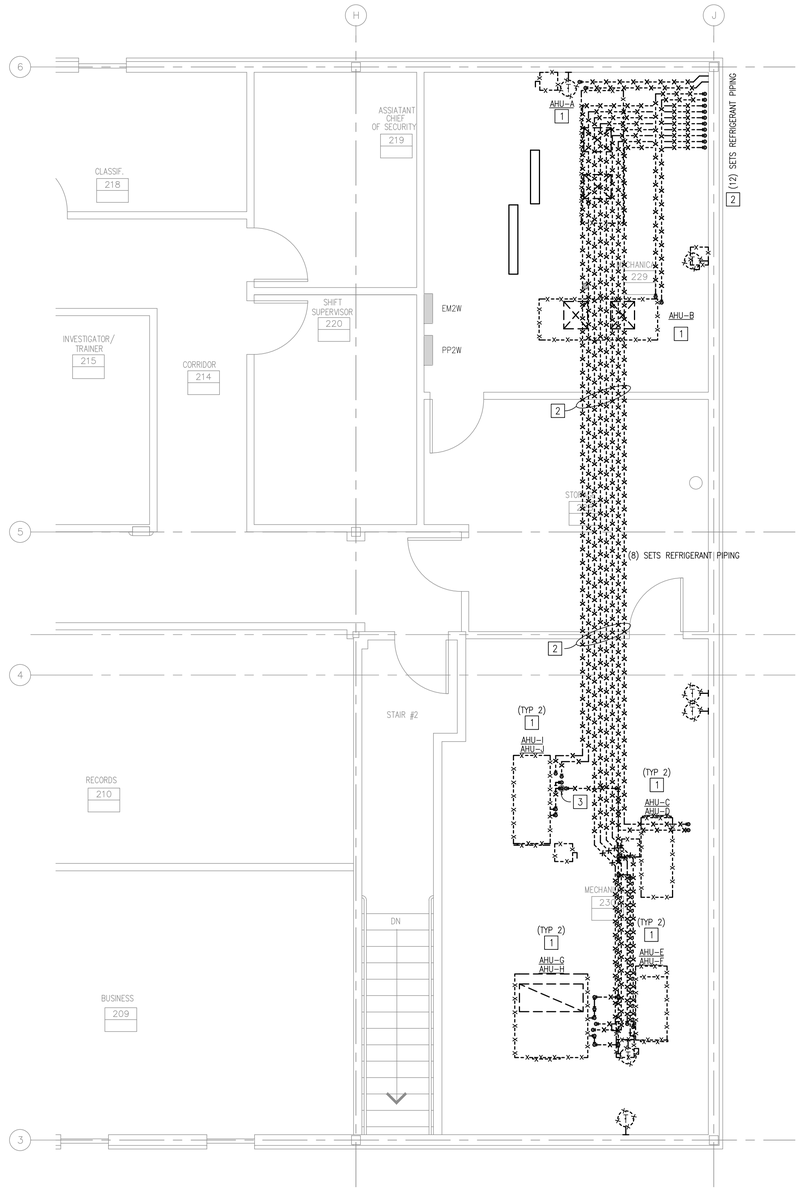
MPD102

23 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 2 MECHANICAL PIPING DEMO PLAN

SCALE: 1/4" = 1'-0"



2 LEVEL 2 MECHANICAL PIPING DEMO PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. REMOVE EXISTING AIR HANDLING UNIT INCLUDING ALL REFRIGERANT PIPING, PIPE INSULATION, PIPE SUPPORTS AND BRACKETS, VALVES, AND ASSOCIATED CONTROLS. REMOVE ALL ANCHOR BOLTS ASSOCIATED WITH DEMOLISHED EQUIPMENT AND PIPING. PATCH REMAINING WALL OPENINGS WHERE REFRIGERANT PIPING AND CONDUITS WERE REMOVED. DISPOSE ALL EQUIPMENT AND CONSTRUCTION DEBRIS PER OWNER'S INSTRUCTIONS.
2. REMOVE EXISTING REFRIGERANT PIPING THROUGH WALL. PROVIDE CLEAR SPACE FOR NEW INSTALLATION OF CHILLED WATER PIPING. COORDINATE DEMOLITION WITH WORK PHASING TO PROVIDE MINIMAL DOWNTIME.
3. REMOVE EXISTING CONDENSATE PIPING ASSOCIATED WITH AHUS SCHEDULED TO BE REMOVED IN ITS ENTIRETY INCLUDING SUPPORTS, HANGERS, MOUNTING BRACKETS, ETC. AS SHOWN. EXISTING FLOOR DRAIN TO REMAIN.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

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CAD DWG FILE:
DRAWN BY: JCM
CHECKED BY: MRB
DESIGNED BY: MRB

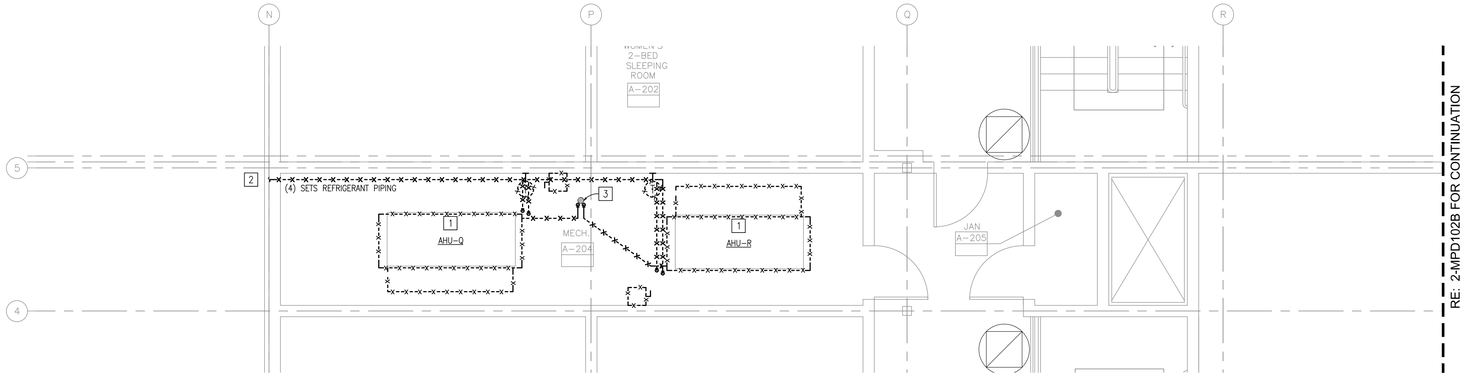
SHEET TITLE:

LEVEL 2
MECH PIPING
DEMO PLAN

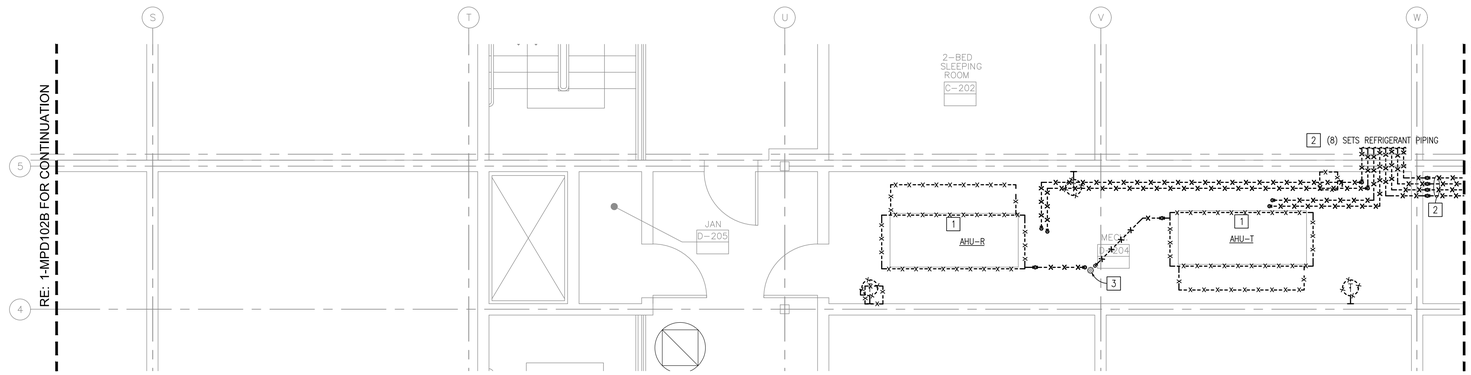
SHEET NUMBER:

MPD102A

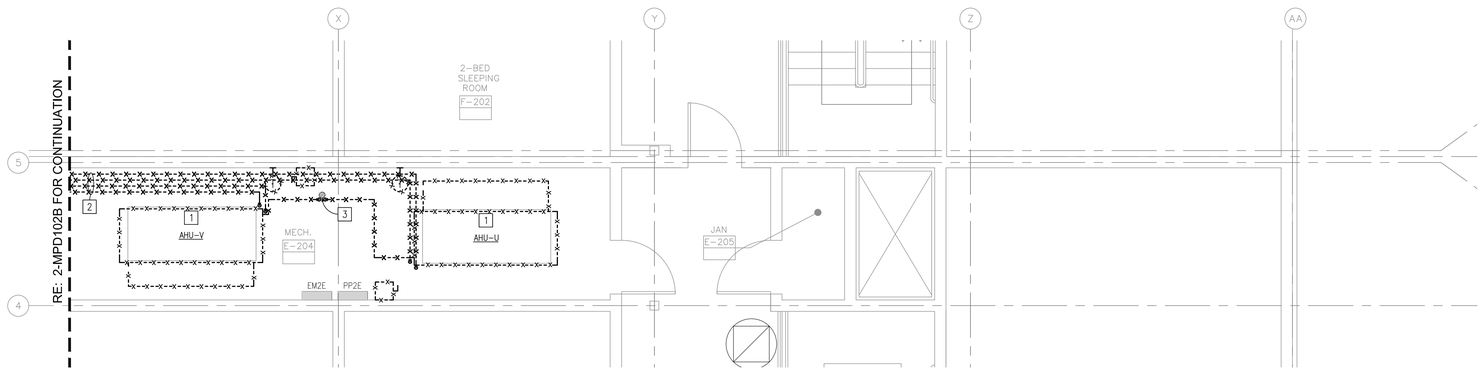
24 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 2 MECHANICAL PIPING DEMO PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 2 MECHANICAL PIPING DEMO PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 2 MECHANICAL PIPING DEMO PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. REMOVE EXISTING AIR HANDLING UNIT INCLUDING ALL REFRIGERANT PIPING, PIPE INSULATION, PIPE SUPPORTS AND BRACKETS, VALVES, AND ASSOCIATED CONTROLS. REMOVE ALL ANCHOR BOLTS ASSOCIATED WITH DEMOLISHED EQUIPMENT AND PIPING. PATCH REMAINING WALL OPENINGS WHERE REFRIGERANT PIPING AND CONDUITS WERE REMOVED. DISPOSE ALL EQUIPMENT AND CONSTRUCTION DEBRIS PER OWNER'S INSTRUCTIONS.
2. REMOVE EXISTING REFRIGERANT PIPING THROUGH WALL. PROVIDE CLEAR SPACE FOR NEW INSTALLATION OF CHILLED WATER PIPING. COORDINATE DEMOLITION WITH WORK PHASING TO PROVIDE MINIMAL DOWNTIME.
3. REMOVE EXISTING CONDENSATE PIPING ASSOCIATED WITH AHUS SCHEDULED TO BE REMOVED IN ITS ENTIRETY INCLUDING SUPPORTS, HANGERS, MOUNTING BRACKETS, ETC. AS SHOWN. EXISTING FLOOR DRAIN TO REMAIN.

GENERAL NOTES:
1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

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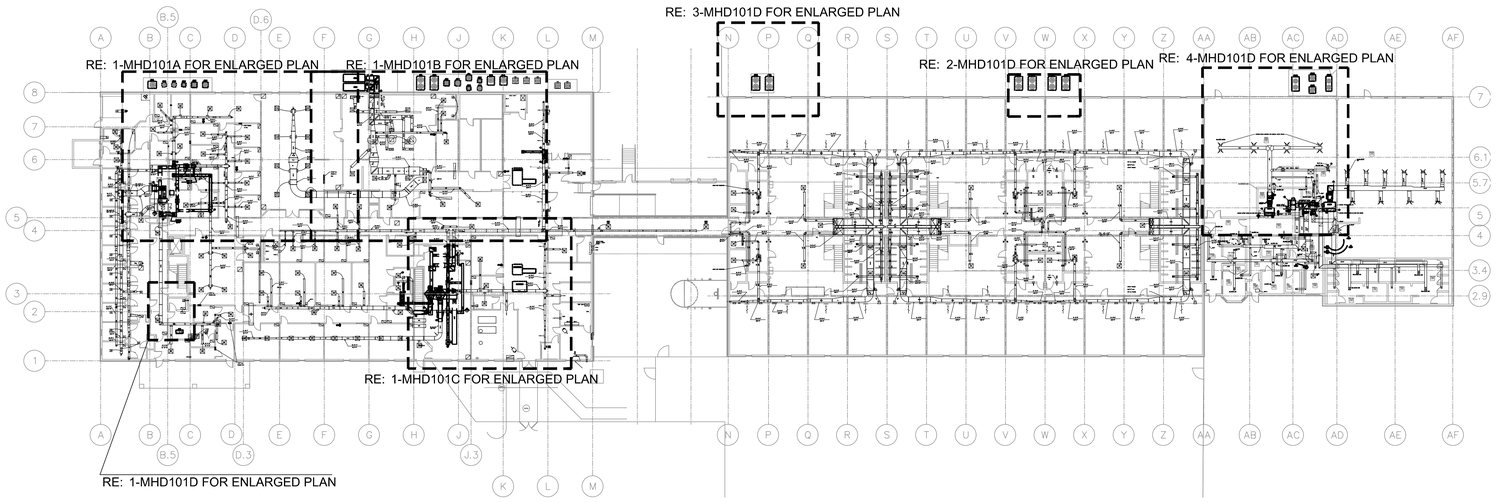
SHEET TITLE:

LEVEL 2
MECH PIPING
DEMO PLAN

SHEET NUMBER:

MPD102B

25 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 1 OVERALL MECHANICAL HVAC DEMO PLAN
SCALE: 1/32" = 1'-0"

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CAD DWG FILE:
DRAWN BY: RJR
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DESIGNED BY: MRB

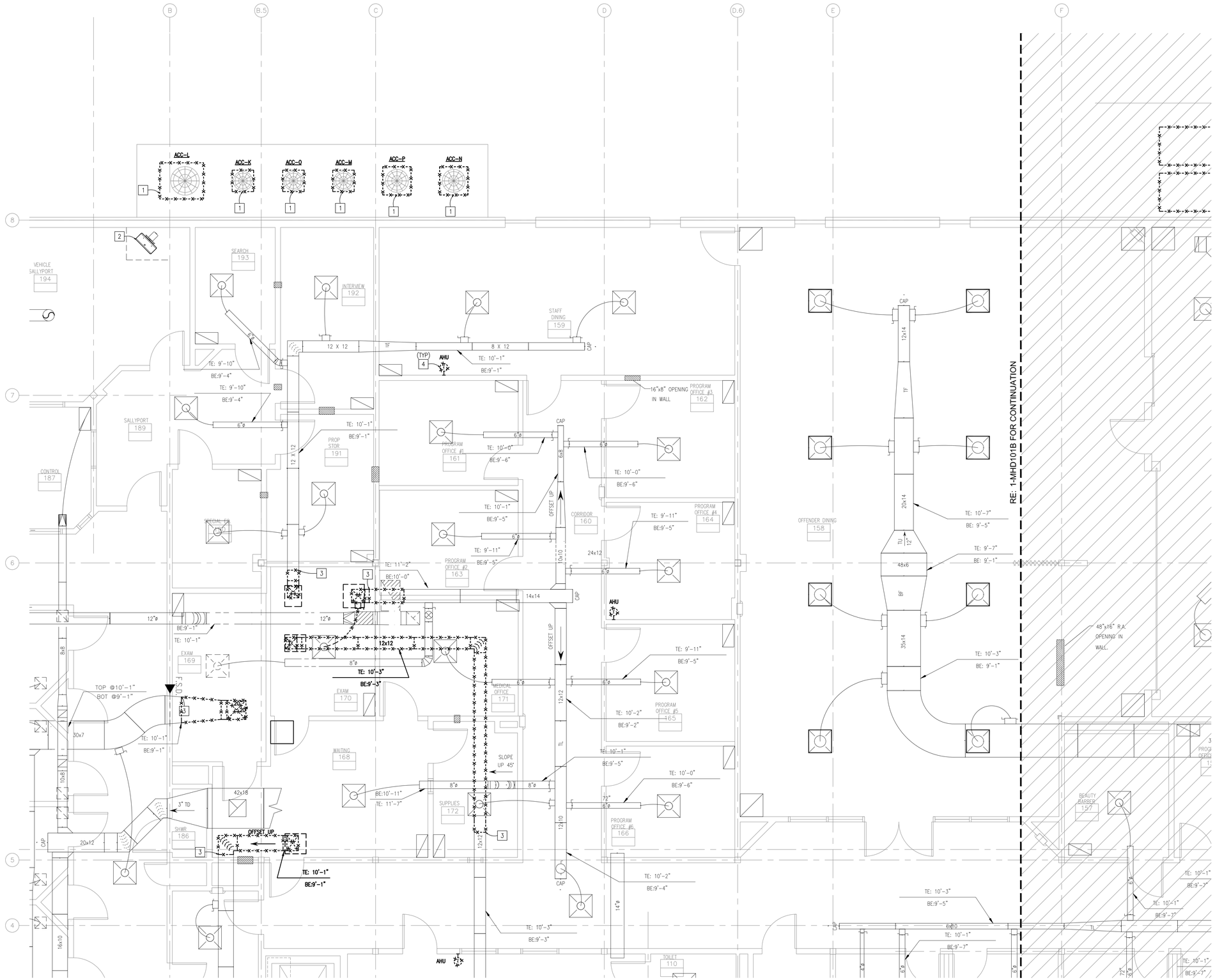
SHEET TITLE:

LEVEL 1 OVERALL MECH HVAC DEMO PLAN

SHEET NUMBER:

MHD101

26 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 1 MECHANICAL HVAC DEMO PLAN

SCALE: 1/8" = 1'-0"

KEYED NOTES:

1. REMOVE EXISTING CONDENSING UNIT AND ALL ASSOCIATED REFRIGERANT PIPING AND SUPPORTS BACK TO ASSOCIATED UNIT.
2. EXISTING ELECTRIC HEATER TO REMAIN.
3. DEMOLISH EXISTING SUPPLY DUCTWORK AS SHOWN. RE:MH101A FOR NEW WORK.
4. REMOVE EXISTING THERMOSTAT INCLUDING CONTROL WIRING, CONDUIT, AND ANY MOUNTING BRACKETS.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

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DESIGNED BY: MRB

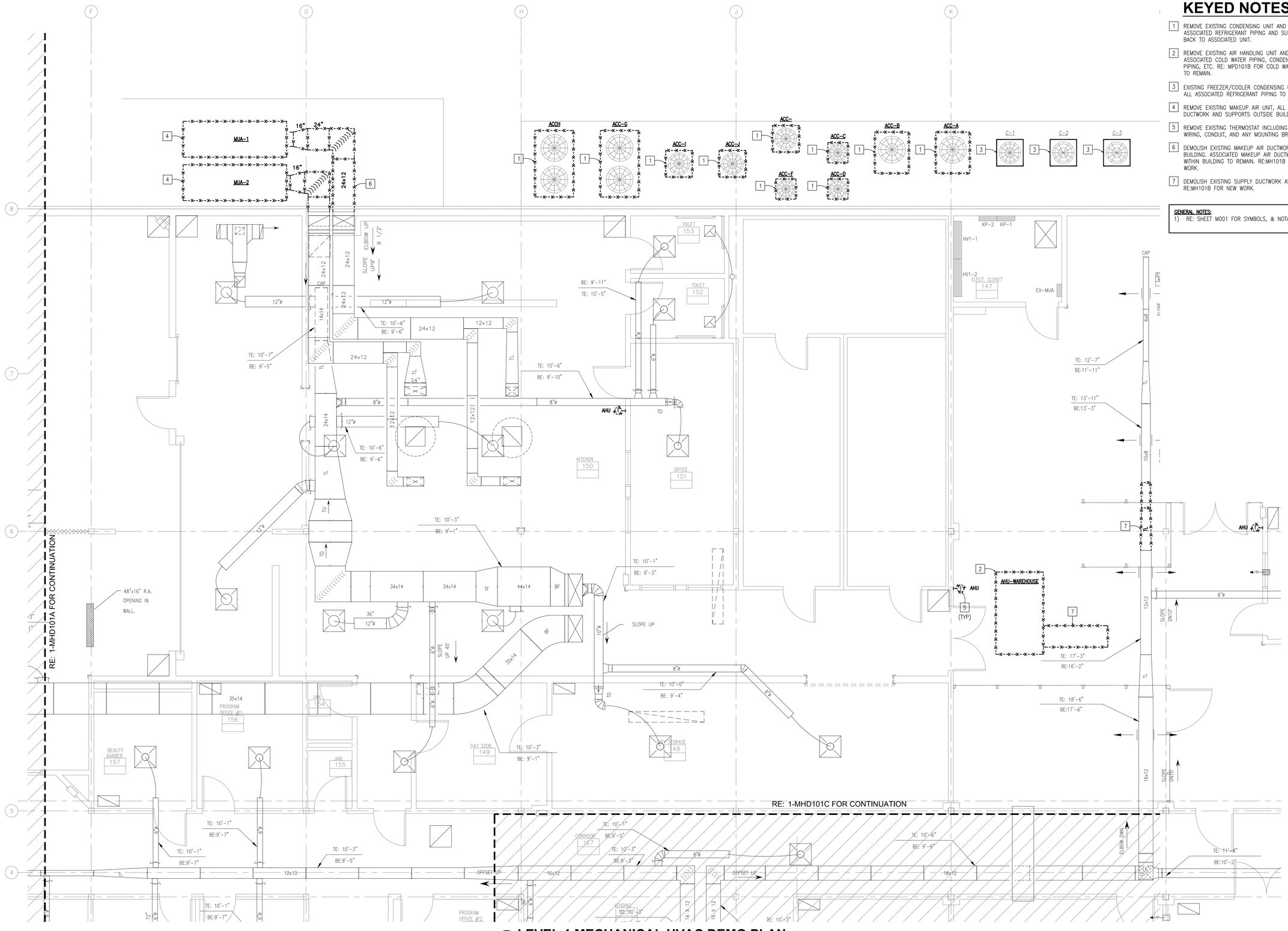
SHEET TITLE:

LEVEL 1
MECH HVAC
DEMO PLAN

SHEET NUMBER:

MHD101A

27 OF 111 SHEETS
MARCH 21, 2023



1 **LEVEL 1 MECHANICAL HVAC DEMO PLAN**
SCALE: 1/8" = 1'-0"

KEYED NOTES:

1. REMOVE EXISTING CONDENSING UNIT AND ALL ASSOCIATED REFRIGERANT PIPING AND SUPPORTS BACK TO ASSOCIATED UNIT.
2. REMOVE EXISTING AIR HANDLING UNIT AND ALL ASSOCIATED COLD WATER PIPING, CONDENSATE PIPING, ETC. RE: MPD101B FOR COLD WATER PIPING TO REMAIN.
3. EXISTING FREEZER/COOLER CONDENSING UNIT AND ALL ASSOCIATED REFRIGERANT PIPING TO REMAIN.
4. REMOVE EXISTING MAKEUP AIR UNIT, ALL ASSOCIATED DUCTWORK AND SUPPORTS OUTSIDE BUILDING.
5. REMOVE EXISTING THERMOSTAT INCLUDING CONTROL WIRING, CONDUIT, AND ANY MOUNTING BRACKETS.
6. DEMOLISH EXISTING MAKEUP AIR DUCTWORK OUTSIDE BUILDING. ASSOCIATED MAKEUP AIR DUCTWORK WITHIN BUILDING TO REMAIN. RE:MH101B FOR NEW WORK.
7. DEMOLISH EXISTING SUPPLY DUCTWORK AS SHOWN. RE:MH101B FOR NEW WORK.

GENERAL NOTES:
1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

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LEVEL 1
MECH HVAC
DEMO PLAN

SHEET NUMBER:

MHD101B

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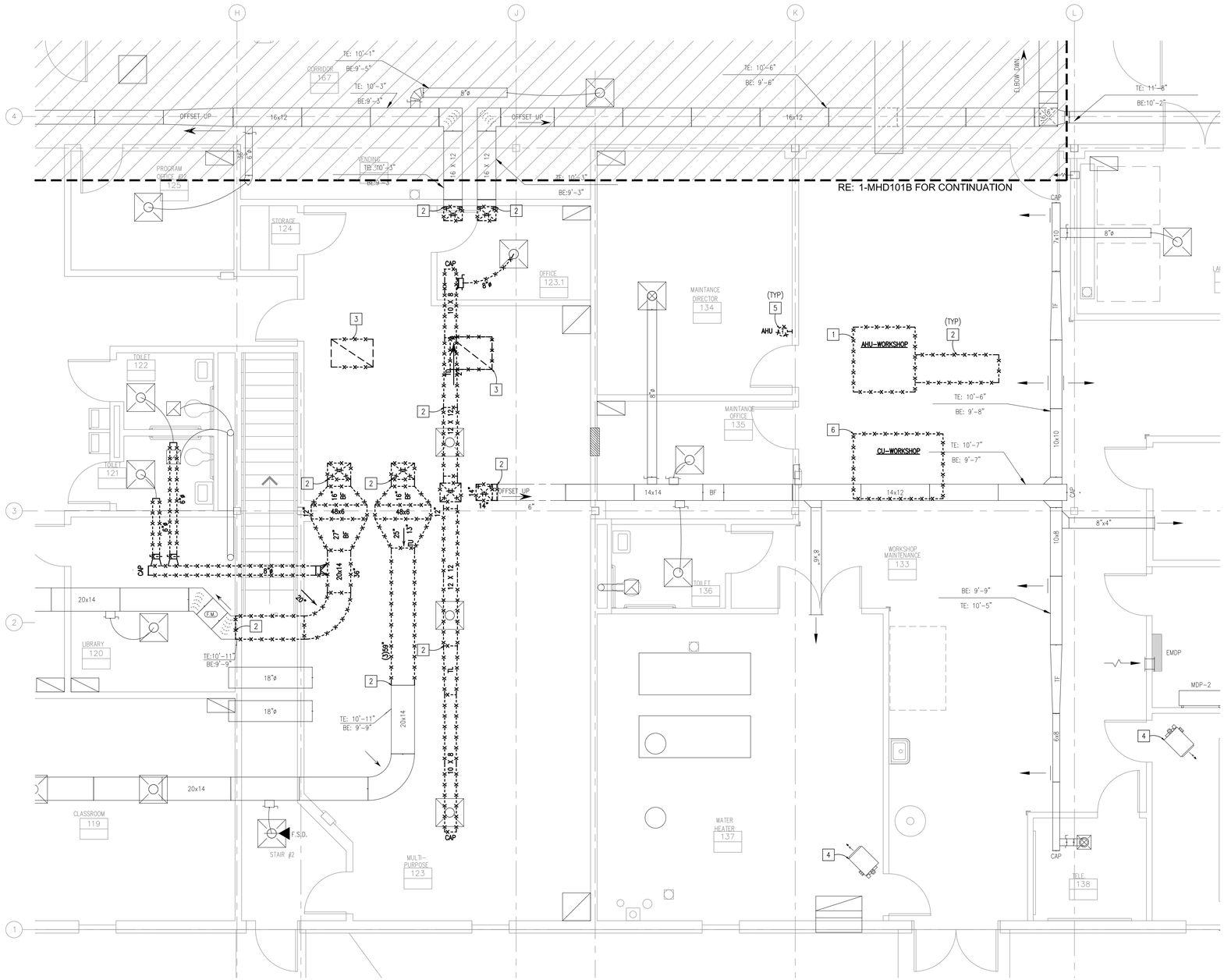
MARCH 21, 2023



1 **LEVEL 1 MECHANICAL HVAC DEMO PLAN**
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. REMOVE EXISTING AIR HANDLING UNIT, CONDENSING UNITAND, AND ALL ASSOCIATED REFRIGERANT, CONDENSATE PIPING, DUCTWORK, ETC. RE: MPD101C FOR COLD WATER PIPING TO REMAIN.
2. DEMOLISH EXISTING SUPPLY DUCTWORK AS SHOWN. RE:MH101C FOR NEW WORK. RE:MH102A FOR CONTINUATION.
3. DEMOLISH EXISTING RETURN AIR DUCTWORK AS SHOWN.
4. EXISTING ELECTRIC HEATER TO REMAIN.
5. REMOVE EXISTING THERMOSTAT INCLUDING CONTROL WIRING, CONDUIT, AND ANY MOUNTING BRACKETS.
6. REMOVE EXISTING CONDENSING UNIT AND ALL ASSOCIATED REFRIGERANT PIPING AND SUPPORTS BACK TO ASSOCIATED UNIT.

GENERAL NOTES:
1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

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SHEET TITLE:

LEVEL 1
MECH HVAC
DEMO PLAN

SHEET NUMBER:

MHD101C

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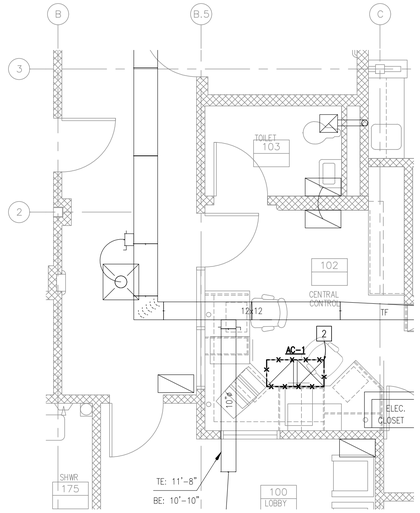
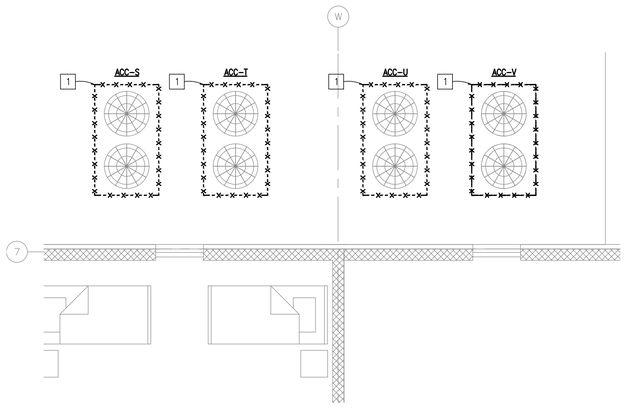
MARCH 21, 2023



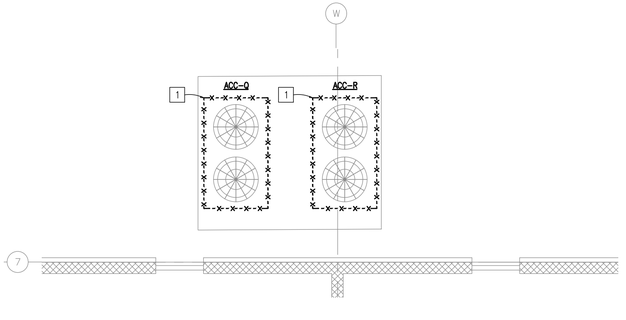
1 LEVEL 1 MECHANICAL HVAC DEMO WORK PLAN

SCALE: 1/4" = 1'-0"



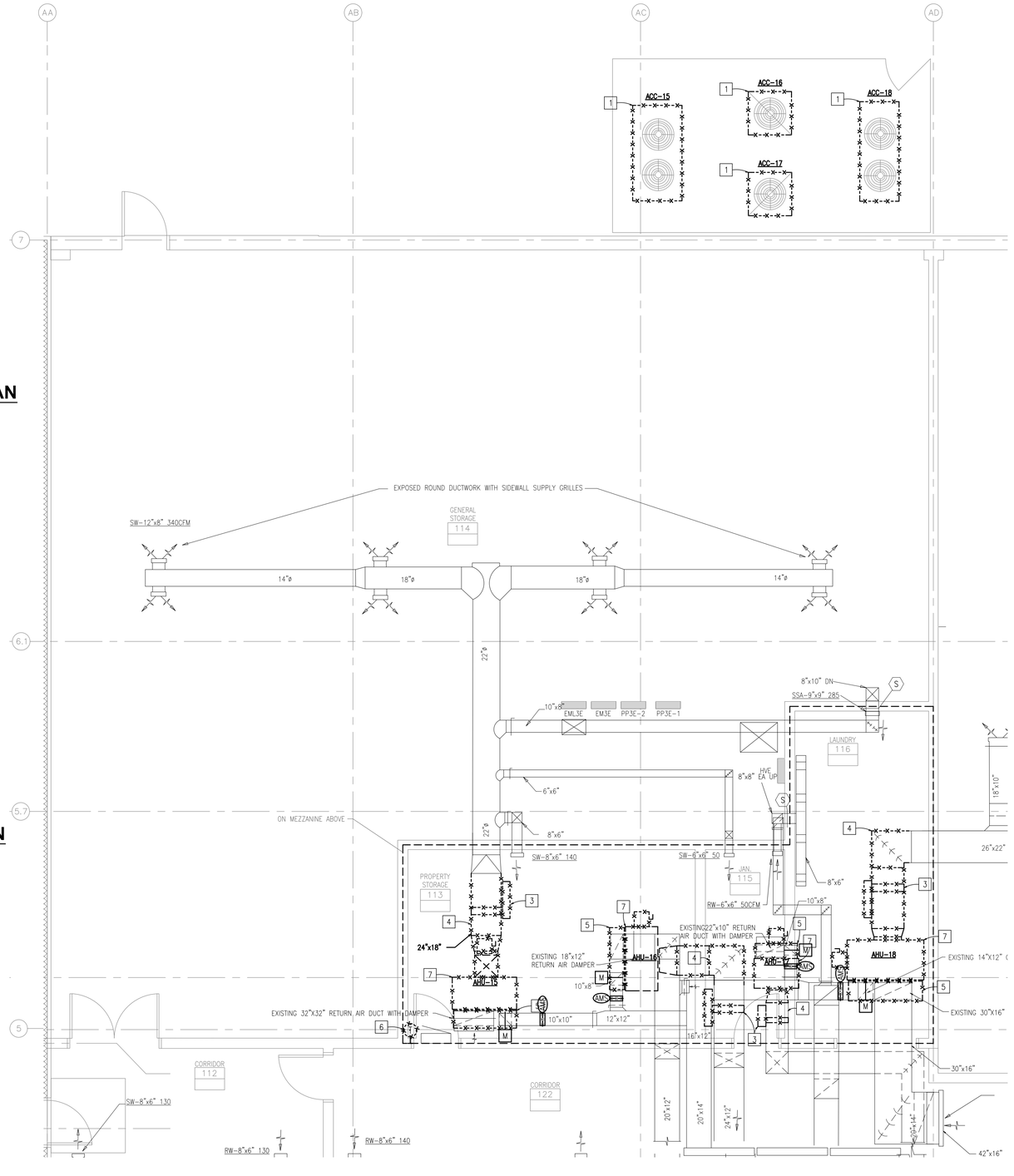
2 LEVEL 1 MECHANICAL HVAC DEMO WORK PLAN

SCALE: 1/4" = 1'-0"



3 LEVEL 1 MECHANICAL HVAC DEMO WORK PLAN

SCALE: 1/4" = 1'-0"



4 LEVEL 1 MECHANICAL HVAC DEMO WORK PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. REMOVE EXISTING CONDENSING UNIT AND ALL ASSOCIATED REFRIGERANT PIPING AND SUPPORTS BACK TO ASSOCIATED UNIT.
2. REMOVE EXISTING AIR CONDITIONING UNIT AND ALL ASSOCIATED PIPING, ETC.
3. REMOVE EXISTING DUCT HEATER.
4. REMOVE EXISTING SUPPLY DUCTWORK AS SHOWN. REFERENCE SHEET MH101D FOR NEW WORK.
5. REMOVE EXISTING RETURN DUCTWORK AS SHOWN. REFERENCE SHEET MH101D FOR NEW WORK.
6. REMOVE EXISTING THERMOSTAT INCLUDING ALL ASSOCIATED CONTROL WIRING, CONDUIT, AND ANY MOUNTING BRACKETS.
7. REMOVE EXISTING AIR HANDLING UNIT AND ALL ASSOCIATED REFRIGERANT PIPING, CONDENSATE PIPING, ETC IN ITS ENTIRETY. DUCTWORK TO BE REMOVED BACK TO NEAREST POINT SCHEDULED TO REMAIN.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

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DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1
MECH HVAC
DEMO PLAN

SHEET NUMBER:

MHD101D

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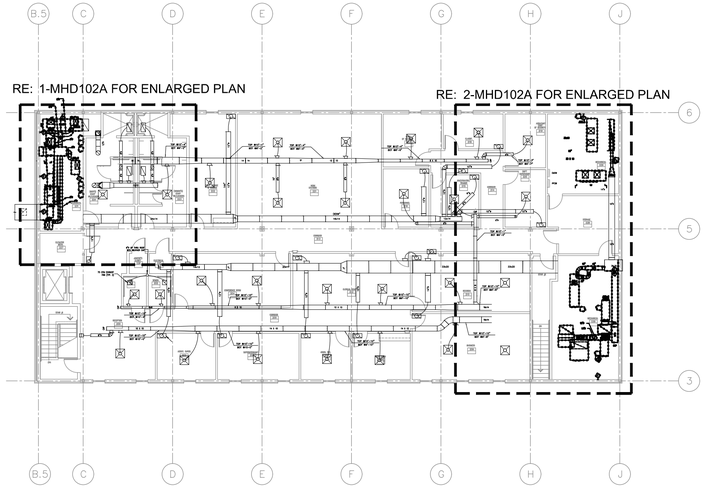
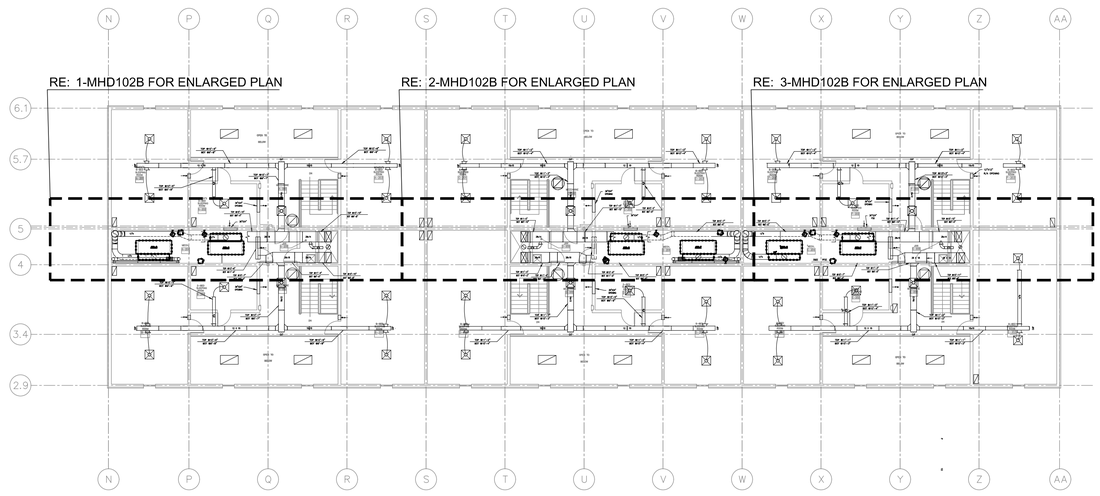
MARCH 21, 2023





1 LEVEL 2 OVERALL MECHANICAL HVAC DEMO PLAN

SCALE: 1/16" = 1'-0"

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

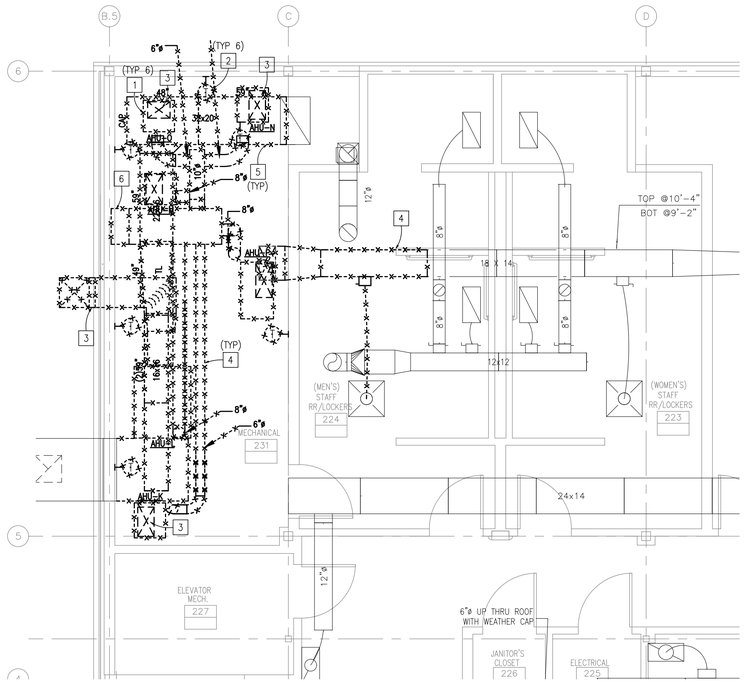
SHEET TITLE:

LEVEL 2 OVERALL MECH HVAC DEMO PLAN

SHEET NUMBER:

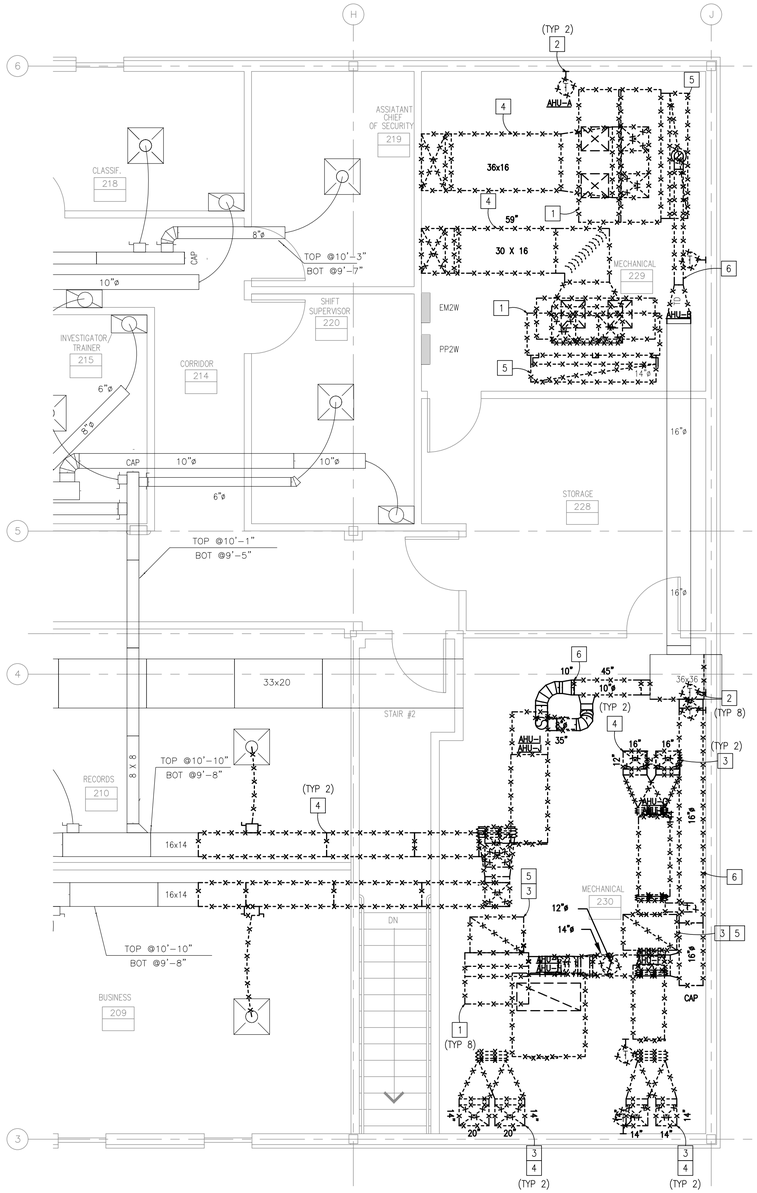
MHD102

31 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 2 MECHANICAL HVAC DEMO PLAN

SCALE: 1/4" = 1'-0"



2 LEVEL 2 MECHANICAL HVAC DEMO PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. REMOVE EXISTING AIR HANDLING UNIT AND ALL ASSOCIATED REFRIGERANT PIPING, CONDENSATE PIPING, ETC.
2. REMOVE EXISTING THERMOSTAT INCLUDING CONTROL WIRING, CONDUIT, AND ANY MOUNTING BRACKETS.
3. EXISTING SUPPLY AND RETURN FLOOR/WALL PENETRATION TO BE PATCHED. RE: STRUCTURAL SHEETS FOR LOCATIONS AND PATCHING DETAILS.
4. DEMOLISH EXISTING SUPPLY DUCTWORK AS SHOWN. RE:MH102A SERIES FOR NEW WORK.
5. DEMOLISH EXISTING RETURN AIR DUCTWORK AS SHOWN. RE:MH102A FOR NEW WORK.
6. DEMOLISH EXISTING OUTDOOR AIR DUCTWORK AS SHOWN. RE:MH102A FOR NEW WORK.

GENERAL NOTES:
1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
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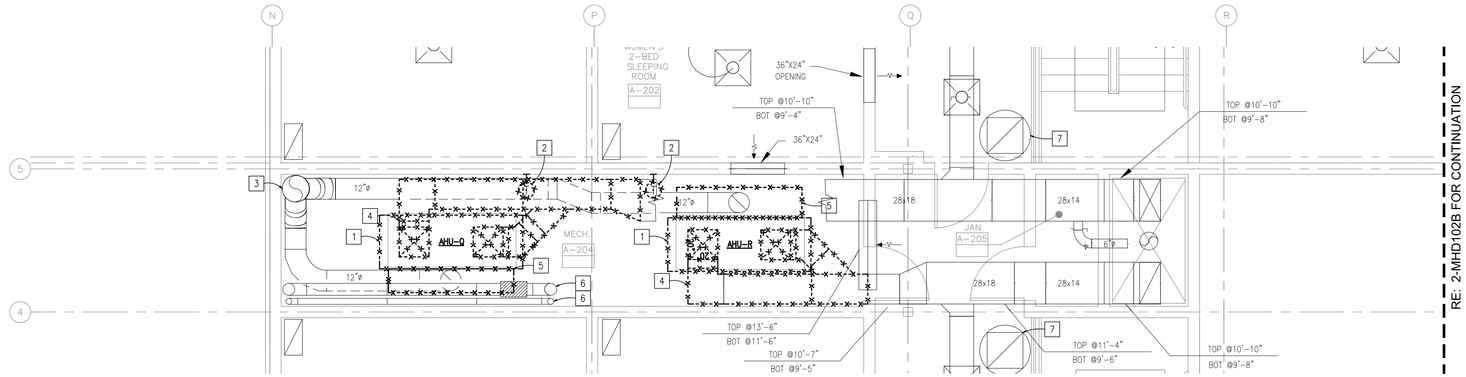
SHEET TITLE:

LEVEL 2
MECH HVAC
DEMO PLAN

SHEET NUMBER:

MHD102A

32 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 2 MECHANICAL HVAC DEMO PLAN
SCALE: 1/4" = 1'-0"

2 LEVEL 2 MECHANICAL HVAC DEMO PLAN
SCALE: 1/4" = 1'-0"

3 LEVEL 2 MECHANICAL HVAC DEMO PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. REMOVE EXISTING AIR HANDLING UNIT AND ALL ASSOCIATED REFRIGERANT PIPING, CONDENSATE PIPING, ETC.
2. REMOVE EXISTING THERMOSTAT INCLUDING CONTROL WIRING, CONDUIT, AND ANY MOUNTING BRACKETS.
3. EXISTING OUTDOOR AIR DUCTWORK TO REMAIN.
4. DEMOLISH EXISTING SUPPLY DUCTWORK AS SHOWN. RE:MH102B SERIES FOR NEW WORK.
5. DEMOLISH EXISTING RETURN AIR DUCTWORK AS SHOWN. RE:MH102B FOR NEW WORK.
6. EXISTING EXHAUST DUCTWORK TO REMAIN.
7. EXISTING EXHAUST FAN TO REMAIN.

GENERAL NOTES:
1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

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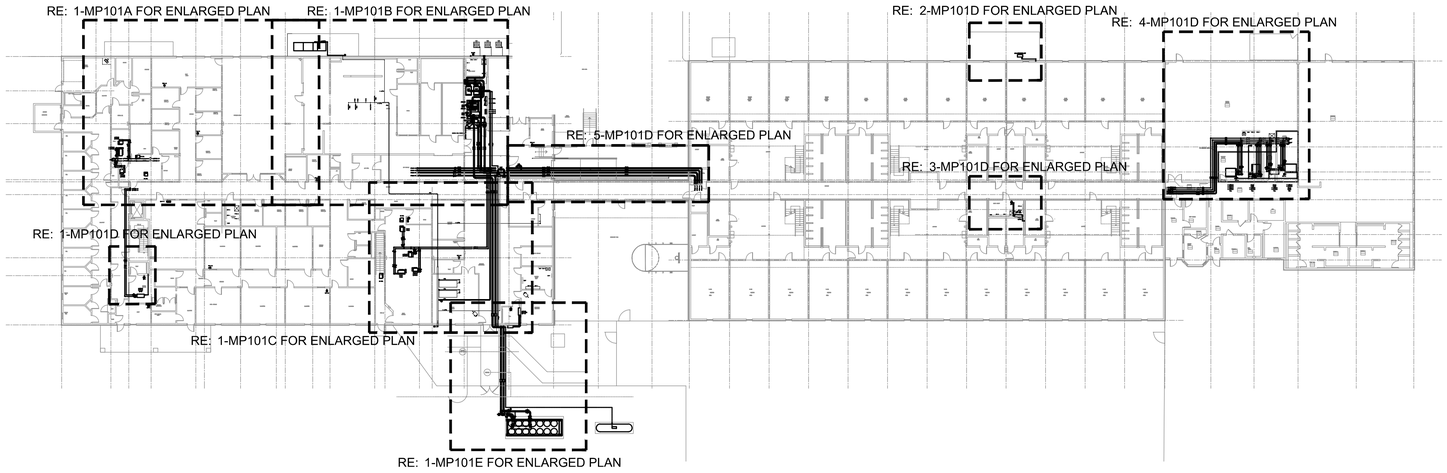
SHEET TITLE:

LEVEL 2
MECH HVAC
DEMO PLAN

SHEET NUMBER:

MHD102B

33 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 1 OVERALL MECHANICAL PIPING NEW WORK PLAN
SCALE: 1/32" = 1'-0"

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CAD DWG FILE:
DRAWN BY: JCM
CHECKED BY: MRB
DESIGNED BY: MRB

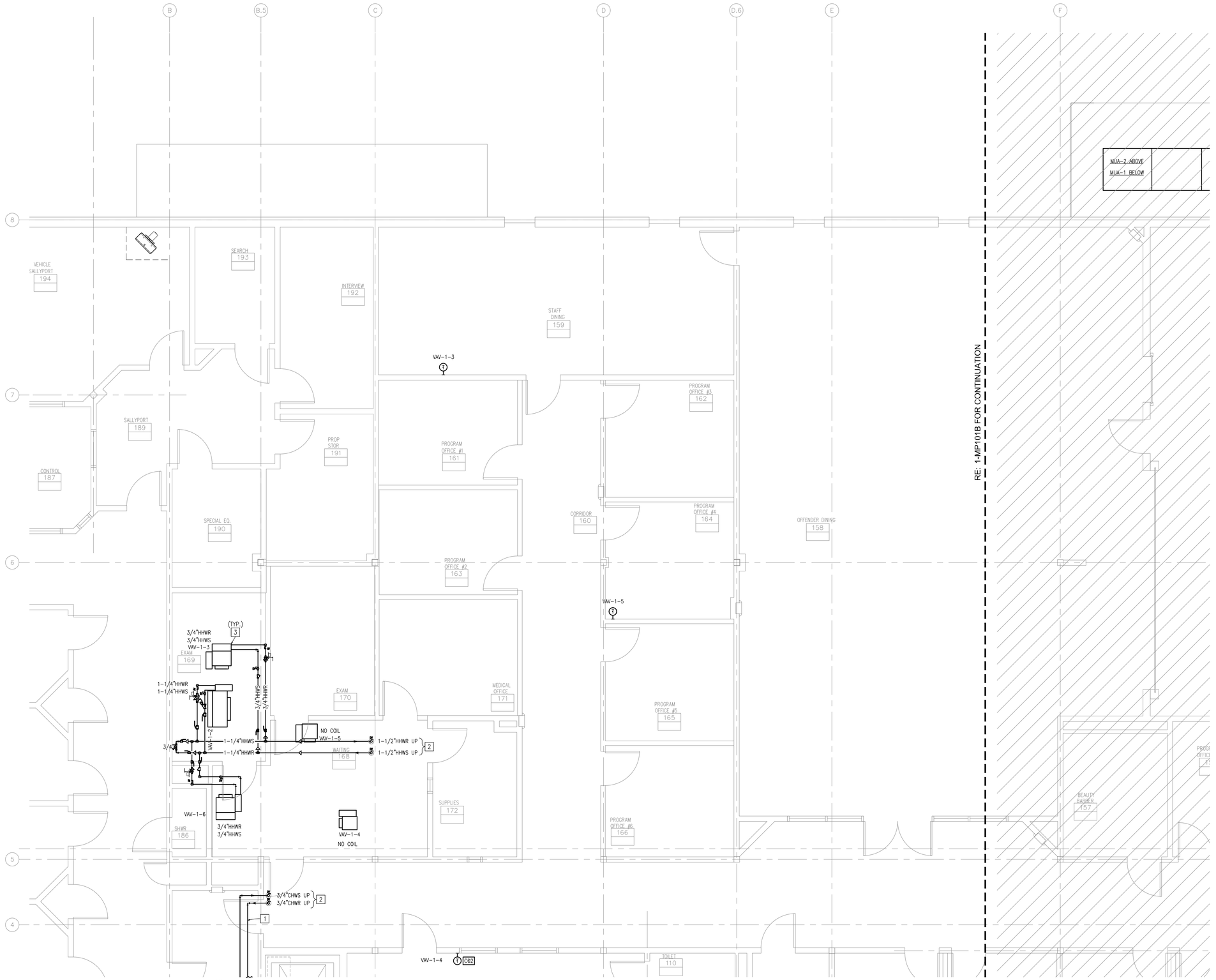
SHEET TITLE:

LEVEL 1 OVERALL MECH PIPING NEW WORK PLAN

SHEET NUMBER:

MP101

34 OF 111 SHEETS
MARCH 21, 2023



KEYED NOTES:

1. INSTALLATION AND ROUTING OF NEW CHILLED WATER PIPING IS ACCEPTABLE BELOW HARD CEILING.
2. ROUTE PIPING UP THROUGH FLOOR. REFERENCE SHEET MP102A FOR CONTINUATION.
3. CONNECT NEW HEATING HOT WATER PIPING TO TERMINAL UNIT IN APPROXIMATE LOCATION SHOWN. TRANSITION PIPING AS NECESSARY FOR A COMPLETE INSTALLATION. RE: M500 SERIES DRAWINGS FOR HEATING HOT WATER COIL PIPING DIAGRAM.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.

1 LEVEL 1 MECHANICAL PIPING NEW WORK PLAN

SCALE: 1/4" = 1'-0"

STATE OF MISSOURI
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CAD DWG FILE:
DRAWN BY: JCM
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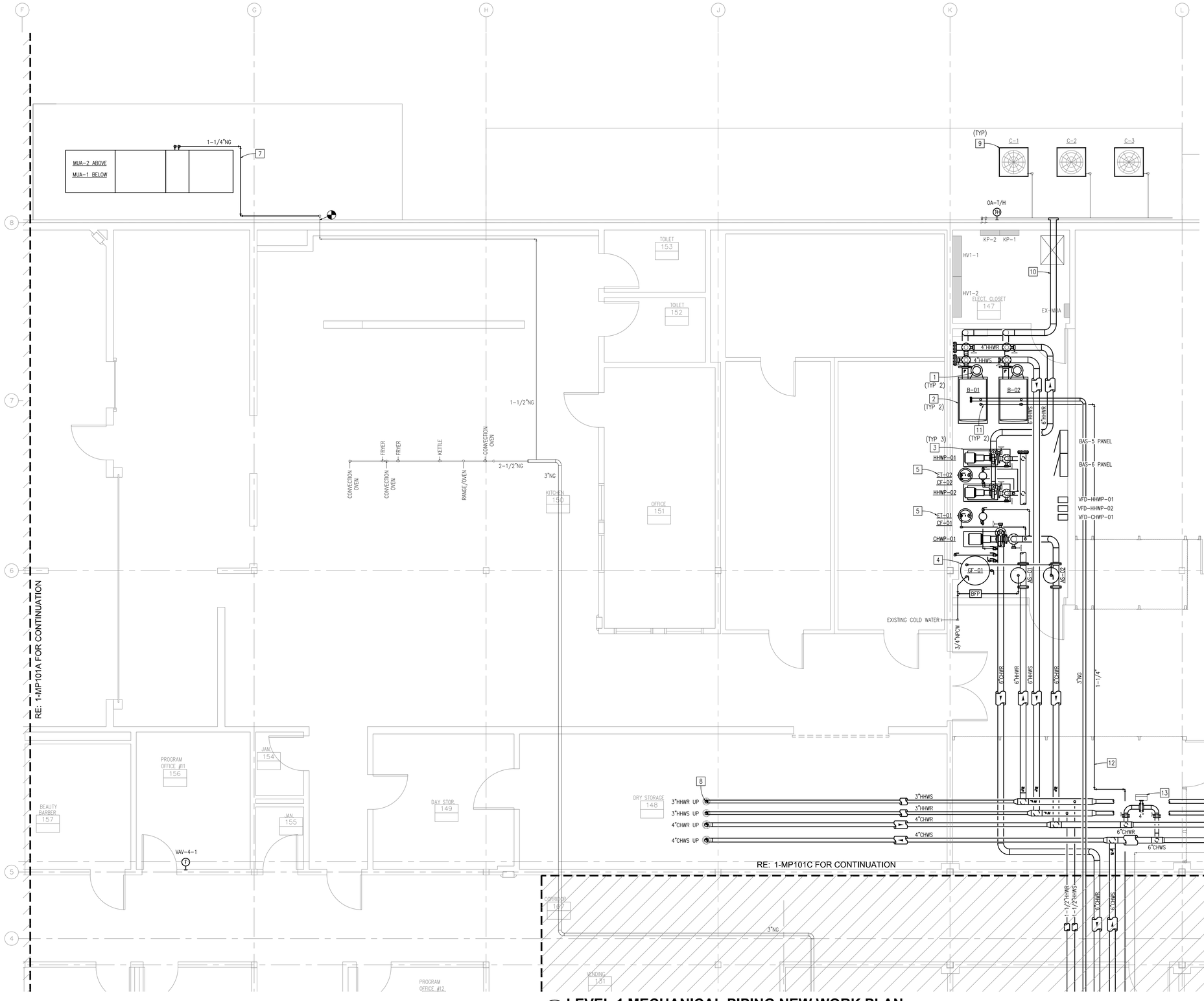
SHEET TITLE:

LEVEL 1
MECH PIPING
NEW WORK PLAN

SHEET NUMBER:

MP101A

35 OF 111 SHEETS
MARCH 21, 2023



KEYED NOTES:

1. PROVIDE 6" PVC FLUE PIPE UP THROUGH ROOF IN APPROXIMATE LOCATION SHOWN. EXTEND FLUE 3 FEET ABOVE ROOF AND PROVIDE RAIN CAP. INSTALL PER BOILER MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE NEW HEATING HOT WATER BOILERS ON NEW CONCRETE HOUSING PAD IN LOCATION SHOWN. INSTALL PER BOILER MANUFACTURER'S RECOMMENDATIONS WHILE MAINTAINING ALL REQUIRED CLEARANCES. RE:M502 FOR HOUSEKEEPING PAD DETAIL.
3. PROVIDE NEW END-SUCTION PUMP ON CONCRETE HOUSING PAD IN LOCATION SHOWN. CONNECT PIPING TO ASSOCIATED END-SUCTION PUMP PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE AND INSTALL ALL PIPING AND DEVICES ALLOWING FOR COMPLETE PUMP CONNECTIONS.
4. PROVIDE GLYCOL FILL SYSTEM ON NEW CONCRETE HOUSEKEEPING PAD IN LOCATION SHOWN. CONNECT PIPING PER MANUFACTURER'S RECOMMENDATION. RE:M502 FOR HOUSEKEEPING PAD DETAIL.
5. PROVIDE CHILLED WATER AND HEATING HOT WATER EXPANSION TANKS APPROXIMATELY 10' ABOVE FINISHED FLOOR IN APPROXIMATE LOCATION SHOWN. SUPPORT EXPANSION TANKS FROM STRUCTURE ABOVE. FIELD VERIFY EXACT LOCATION.
6. INSTALL 3" MODULATING BYPASS HOT WATER CONTROL VALVE. RE:M702 FOR SCHEMATIC.
7. CONNECT TO EXISTING NATURAL GAS PIPING AND EXTEND TO NEW MAKEUP AIR UNITS. FIELD VERIFY EXISTING PIPING MATERIAL AND PROVIDE NEW TO MATCH. SUPPORT PIPING FROM CONCRETE HOUSEKEEPING PAD EVERY 5 FEET. CONNECT PIPING PER MANUFACTURER'S RECOMMENDATION.
8. ROUTE PIPING UP THROUGH FLOOR. RE:MP102A FOR CONTINUATION.
9. EXISTING CONDENSING UNITS TO REMAIN.
10. PROVIDE (2) 8" PVC COMBUSTING AIR PIPING THROUGH SIDEWALL IN APPROXIMATE LOCATION SHOWN AND TERMINATE PER MANUFACTURER. INSTALL PER BOILER MANUFACTURERS RECOMMENDATIONS.
11. 1" PROPANE CONNECTION TO EACH BOILER. RE:M500 SERIES FOR BOILER CONNECTION DETAIL.
12. PROVIDE NEW PROPANE PIPING TO NEW BOILERS. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
13. INSTALL 4" MODULATING CHILLED WATER BYPASS CONTROL VALVE. RE:M701 FOR SCHEMATIC.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.
3) RE: SHEETS M700 SERIES FOR RISER DIAGRAM

1 LEVEL 1 MECHANICAL PIPING NEW WORK PLAN

SCALE: 1/8" = 1'-0"

STATE OF MISSOURI
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3-21-2023
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CAD DWG FILE:
DRAWN BY: JCM
CHECKED BY: MRB
DESIGNED BY: MRB

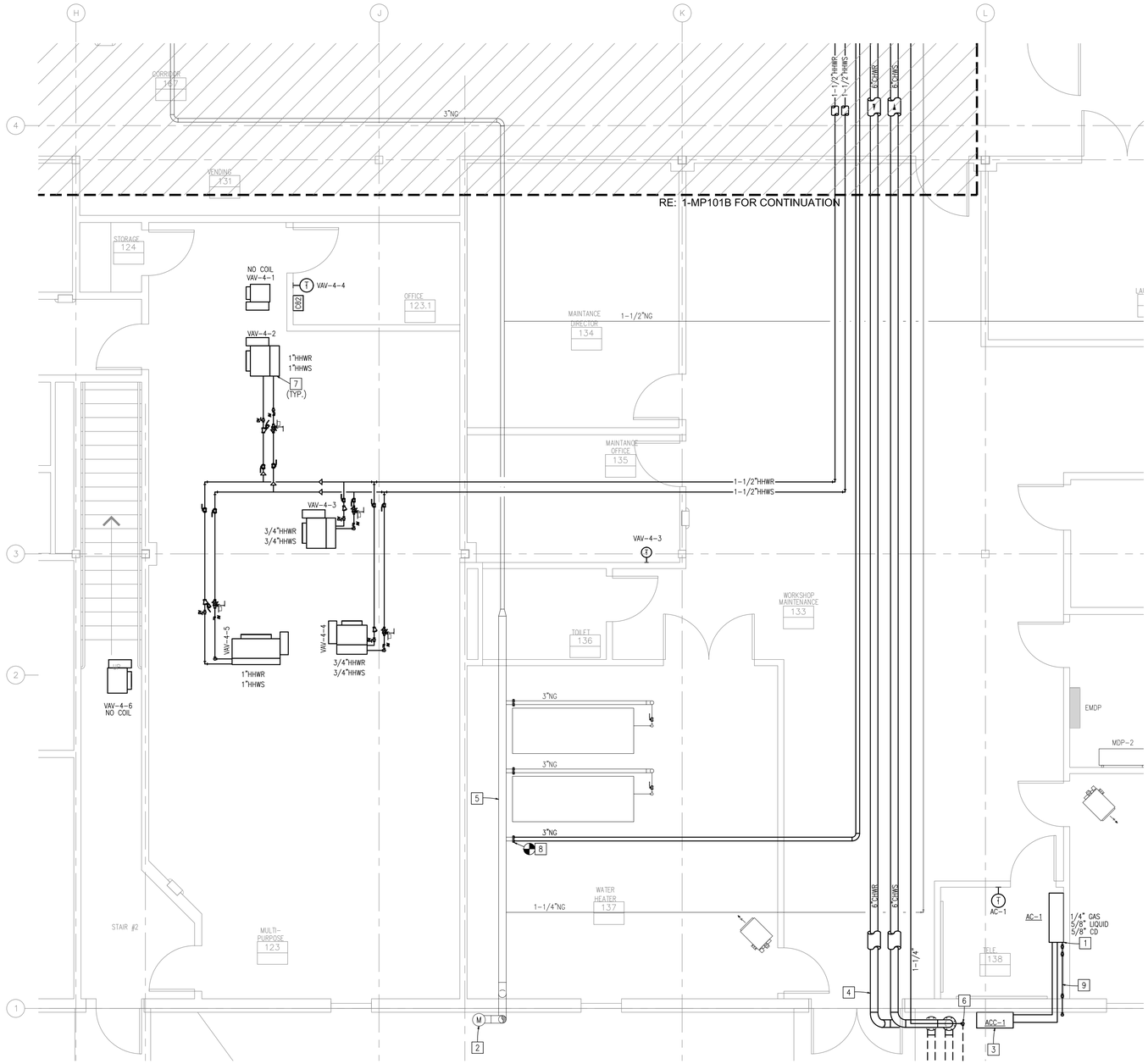
SHEET TITLE:

LEVEL 1 OVERALL MECH PIPING NEW WORK PLAN

SHEET NUMBER:

MP101B

36 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 1 MECHANICAL PIPING NEW WORK PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE AND INSTALL WALL MOUNTED AC UNIT IN LOCATION SHOWN. CONNECT INSULATED REFRIGERANT LINES ROUTED FROM ASSOCIATED CONDENSING UNIT. PROVIDE ALL NECESSARY SUPPORTS FOR A WALL MOUNTED CONFIGURATION. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. RE: SHEET M600 SERIES FOR SCHEDULE.
2. CONTRACTOR SHALL COORDINATE EXISTING NATURAL GAS METER SIZING WITH UTILITY TO ENSURE IT CAN HANDLE THE ADDITIONAL LOAD OF THE BOILERS. REPLACE METER AS NECESSARY TO ALLOW FOR A COMPLETE AND OPERABLE SYSTEM. RE: M600 SERIES FOR BUILDING NATURAL GAS EQUIP LOAD.
3. PROVIDE WALL MOUNTED CONDENSING UNIT. PROVIDE ALL NECESSARY SUPPORTS FOR A WALL MOUNTED CONFIGURATION. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
4. ROUTE NEW CHILLED WATER PIPING THRU EXTERIOR WALL IN WORKSHOP MAINTENANCE IN LOCATION SHOWN. RE:M500 SERIES FOR PIPE PENETRATION DETAIL.
5. EXISTING NATURAL GAS PIPING. CONTRACTOR TO VERIFY EXACT ROUTING AND SIZE.
6. PROVIDE PROPANE REGULATOR OUTSIDE BUILDING. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
7. CONNECT NEW HEATING HOT WATER PIPING TO TERMINAL UNIT IN APPROXIMATE LOCATION SHOWN. TRANSITION PIPING AS NECESSARY FOR A COMPLETE INSTALLATION. RE: M500 SERIES DRAWINGS FOR HEATING HOT WATER COIL PIPING DIAGRAM.
8. CONNECT TO EXISTING NATURAL GAS PIPING IN LOCATION SHOWN. FIELD VERIFY EXISTING PIPING MATERIAL AND PROVIDE NEW TO MATCH. TRANSITION PIPING AS NECESSARY FOR A COMPLETE INSTALLATION.
9. PROVIDE NEW CONDENSATE PIPING FROM AC UNIT TO EXTERIOR WALL. PIPING SHALL TURN DOWN AND PENETRATE EXTERIOR WALL AT APPROXIMATE 12" ABOVE GRADE WITH 6" AIR GAP. FIELD VERIFY EXACT PIPING ROUTE AND SLOPE PIPING AT 1/8" PER FOOT TOWARD EXTERIOR. SEAL EXTERIOR PENETRATION WEATHER TIGHT.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.
3) RE: SHEETS M700 SERIES FOR RISER DIAGRAM

STATE OF MISSOURI
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SHEET TITLE:

LEVEL 1 OVERALL MECH PIPING NEW WORK PLAN

SHEET NUMBER:

MP101C

37 OF 111 SHEETS
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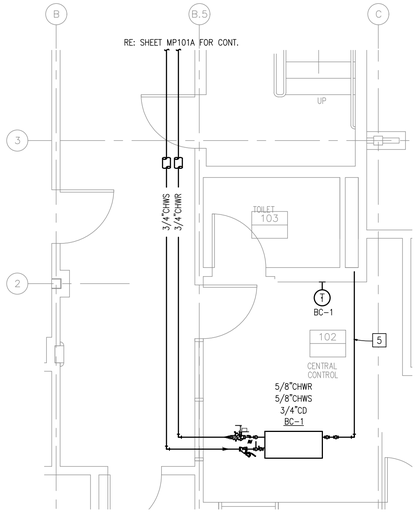
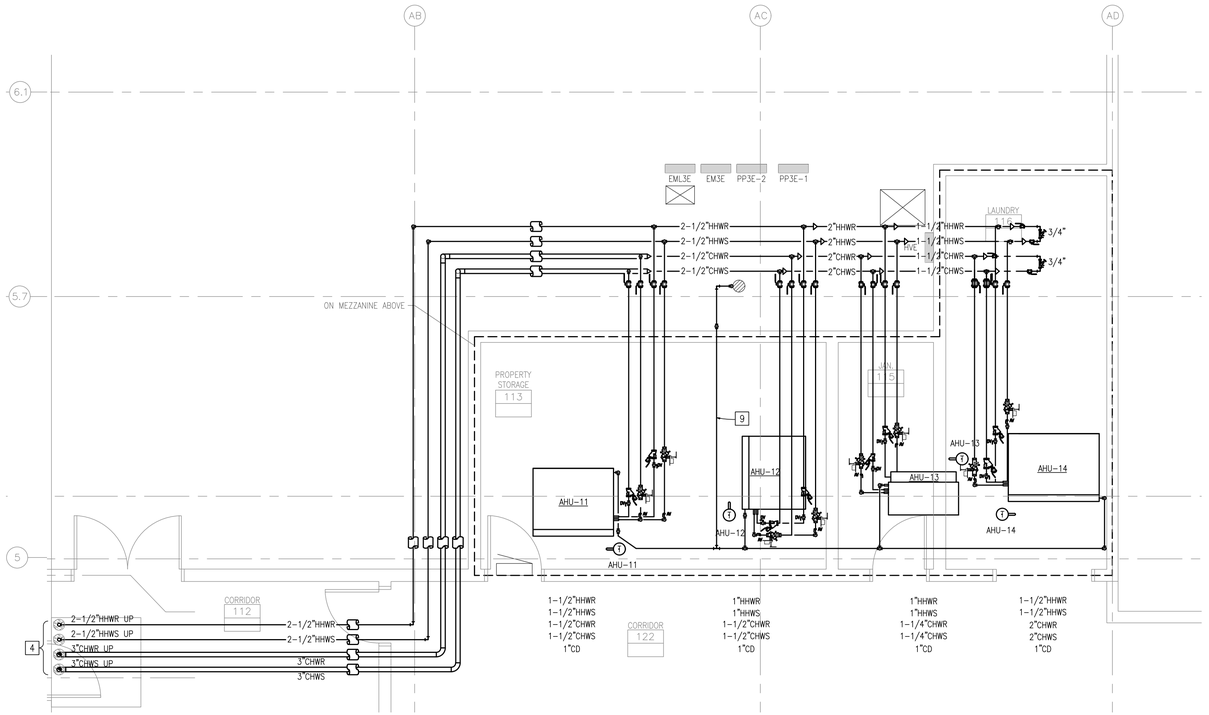
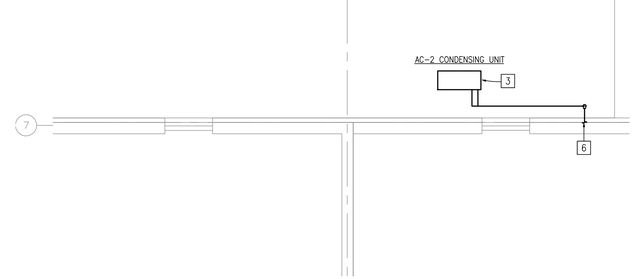


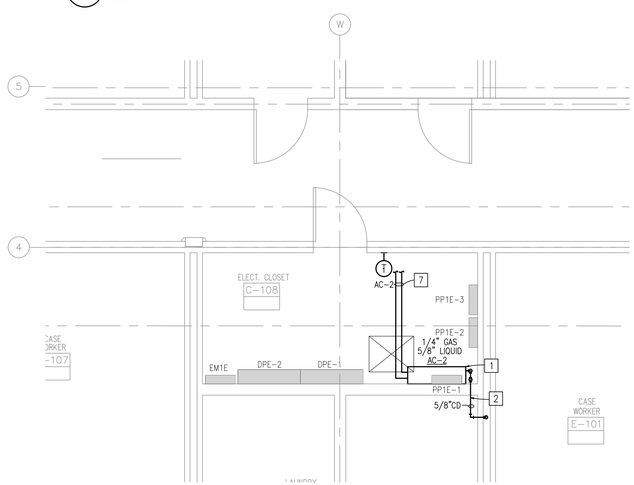
1 LEVEL 1 MECHANICAL PIPING NEW WORK PLAN
SCALE: 1/4" = 1'-0"



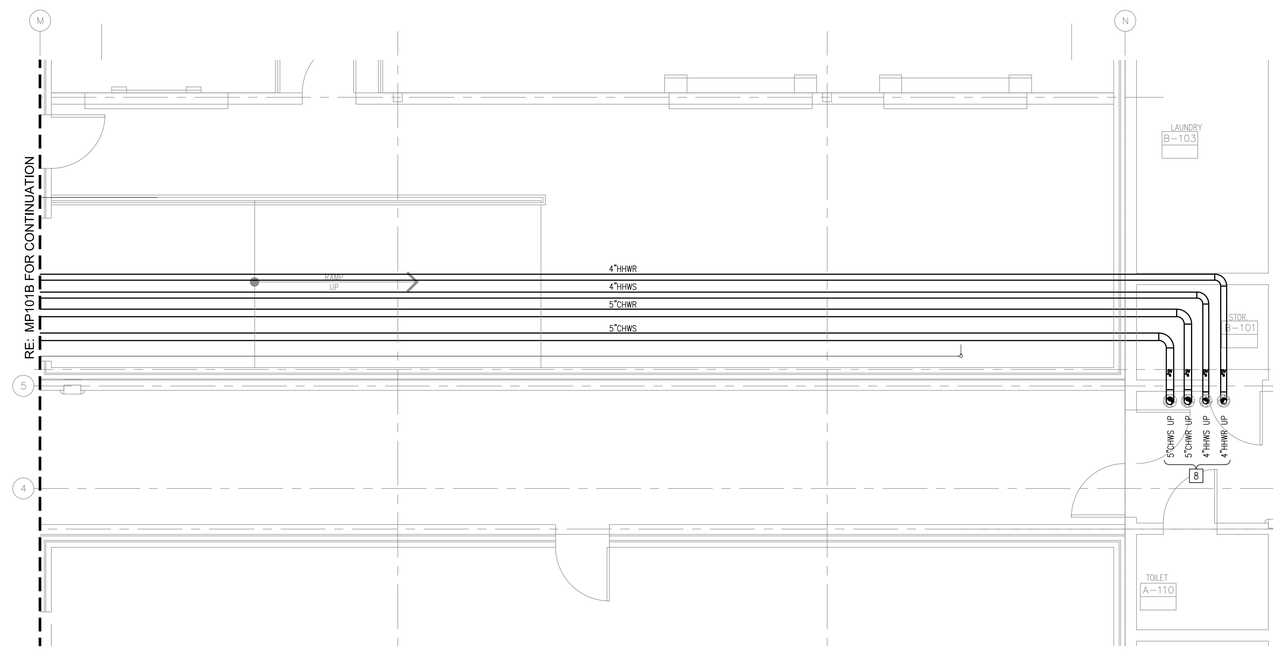
4 LEVEL 1 MECHANICAL PIPING NEW WORK PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 1 MECHANICAL PIPING NEW WORK PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 1 MECHANICAL PIPING NEW WORK PLAN
SCALE: 1/4" = 1'-0"



5 LEVEL 1 MECHANICAL PIPING NEW WORK PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE AND INSTALL WALL MOUNTED AC UNIT IN LOCATION SHOWN. CONNECT INSULATED REFRIGERANT LINES ROUTED FROM ASSOCIATED CONDENSING UNIT. PROVIDE ALL NECESSARY SUPPORTS FOR A WALL MOUNTED CONFIGURATION. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. RE: SHEET M600 FOR SCHEDULE.
2. PROVIDE AND INSTALL CONDENSATE PIPING. ROUTE TO EXISTING WASHING MACHINE DRAIN IN ADJACENT ROOM.
3. PROVIDE CONDENSING UNIT TO BE INSTALLED ON EXISTING PAD.
4. ROUTE HOT/CHILLED WATER PIPING ABOVE CEILING. REFERENCE 3:MP102B FOR CONTINUATION.
5. PROVIDE AND INSTALL CONDENSATE PIPING. ROUTE TO EXISTING PIPING IN ADJACENT RESTROOM.
6. ROUTE REFRIGERANT PIPING THROUGH EXTERIOR WALL DOWN LOW AND TURN UP ABOVE CEILING. SEAL PENETRATION WEATHER TIGHT. PROVIDE INSULATION AND ALUMINUM JACK ON EXTERIOR PIPING.
7. REFRIGERANT PIPING SHALL BE ROUTED ABOVE CEILING TO ASSOCIATED CONDENSING UNIT AND SUPPORTED FROM STRUCTURE ABOVE. FIELD VERIFY EXACT ROUTE AND TRANSITION PIPING AS NECESSARY FOR A COMPLETE INSTALLATION. PIPING SHALL BE SIZED PER MANUFACTURERS RECOMMENDATIONS.
8. ROUTE HOT/CHILLED WATER PIPING UP TO THROUGH FLOOR IN LOCATION SHOWN. REFERENCE 1:MP102B FOR CONTINUATION.
9. ROUTE 1-1/2" COMMON CONDENSATE PIPING TO EXISTING FLOOR DRAIN. CONDENSATE PIPING SHALL SLOPE A 1/8" PER FOOT TOWARD DRAIN.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.
3) RE: SHEETS M700 SERIES FOR RISER DIAGRAM

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LEVEL 1 OVERALL MECH PIPING NEW WORK PLAN

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MP101D

38 OF 111 SHEETS
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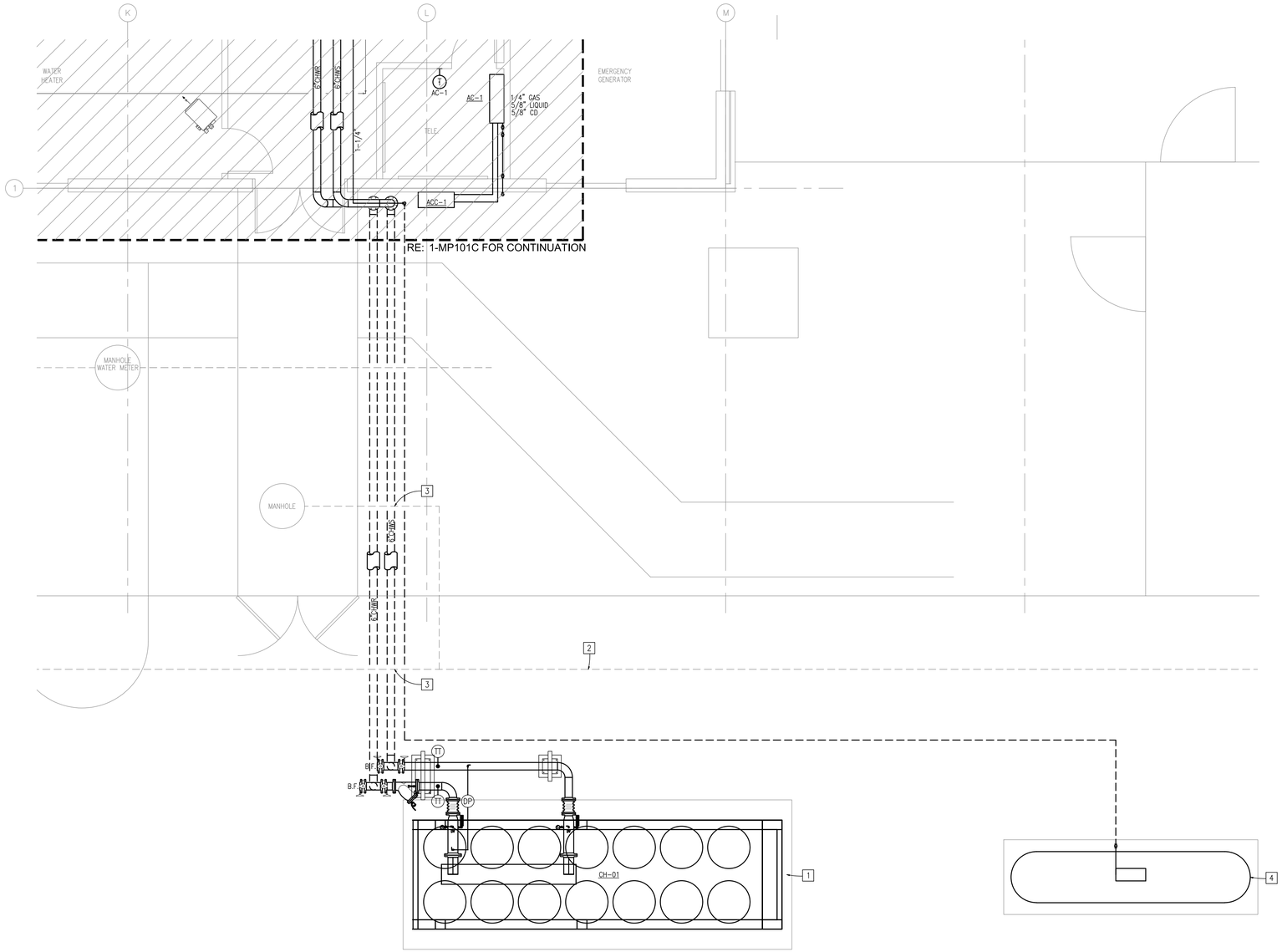

KEYED NOTES:

1. NEW CHILLER IN LOCATION SHOWN ON NEW HOUSEKEEPING PAD. INSTALL PER MANUFACTURER'S RECOMMENDATIONS WHILE MAINTAINING ALL REQUIRED CLEARANCES AND 10' FROM FENCE. FIELD VERIFY EXACT LOCATION AND ORIENTATION WITH EXISTING SITE CONDITIONS. COORDINATE ALL WORK WITH ELECTRICAL CONTRACTOR AND CONTROLS CONTRACTOR.
2. APPROXIMATE ROUTING OF EXISTING DOMESTIC COLD WATER MAIN PIPING.
3. COORDINATE LOCATION WITH EXISTING DOMESTIC COLD WATER MAIN APPROXIMATELY 5'-0" BELOW GRADE. ROUTE NEW CHILLED WATER PIPING BELOW EXISTING DOMESTIC COLD WATER MAIN. PROVIDE CONCRETE CAP WHERE NEW PIPING INTERSECTS EXISTING DOMESTIC COLD WATER PIPE.
4. 1,000 GAL PROPANE TANK IN LOCATION SHOWN. INSTALL PER MANUFACTURERS RECOMMENDATIONS. FIELD VERIFY EXACT LOCATION AND ORIENTATION WITH EXISTING SITE CONDITIONS. CONTRACTOR TO COORDINATE WITH PROPANE TANK PURCHASE WITH OWNER.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.
3) RE: SHEETS M700 SERIES FOR RISER DIAGRAM

1 LEVEL 1 MECHANICAL PIPING NEW WORK PLAN

SCALE: 1/4" = 1'-0"

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
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DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: JCM
CHECKED BY: MRB
DESIGNED BY: MRB

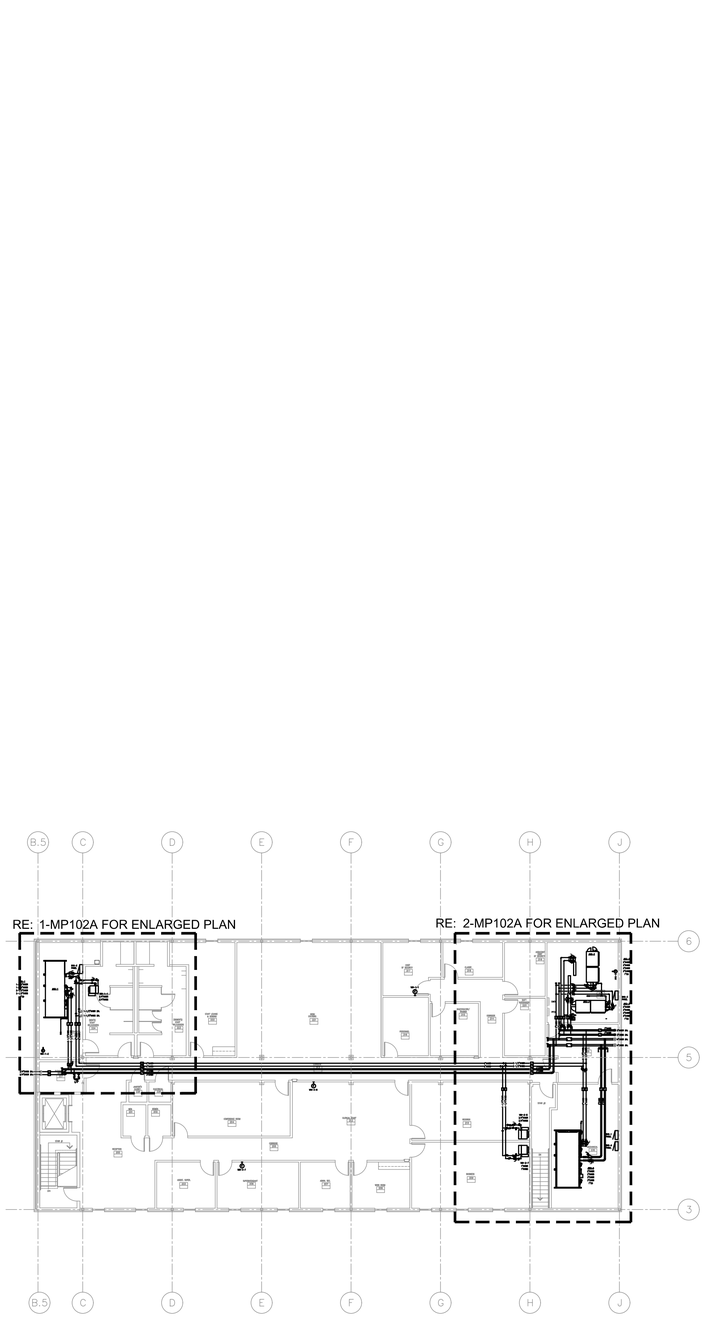
SHEET TITLE:

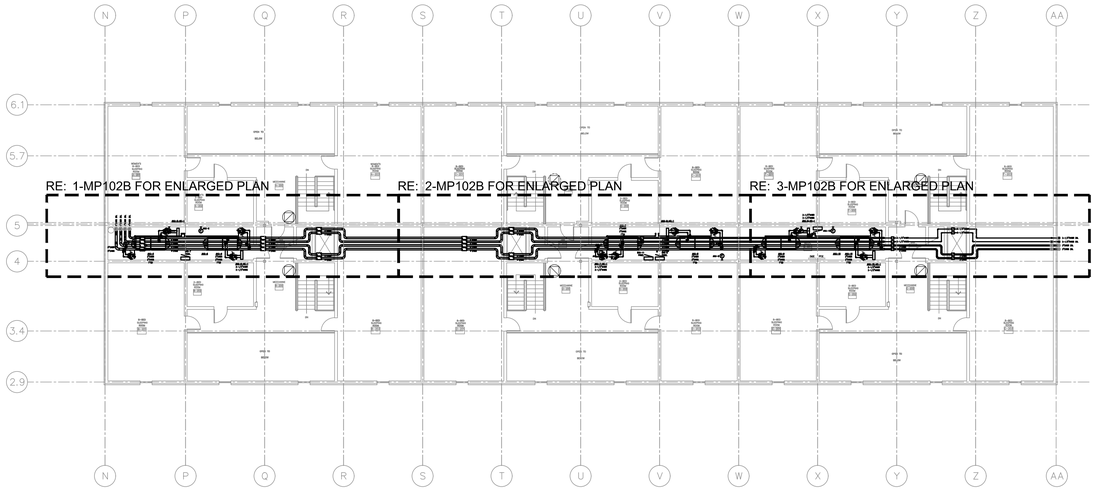
LEVEL 1 OVERALL MECH PIPING NEW WORK PLAN

SHEET NUMBER:

MP101E

39 OF 111 SHEETS
MARCH 21, 2023





1 LEVEL 2 MECHANICAL OVERALL PIPING NEW WORK PLAN

SCALE: 1/16" = 1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
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CAD DWG FILE:
DRAWN BY: JCM
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DESIGNED BY: MRB

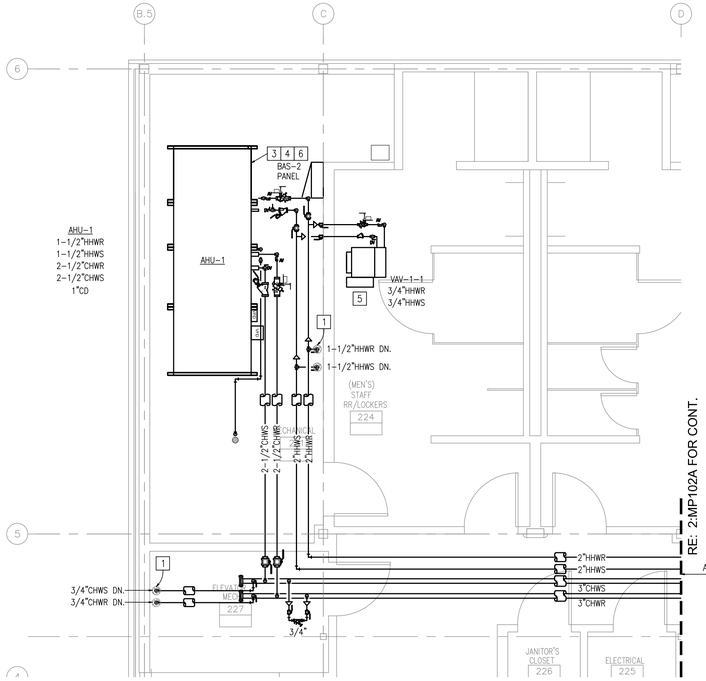
SHEET TITLE:

LEVEL 2 OVERALL MECH PIPING NEW WORK PLAN

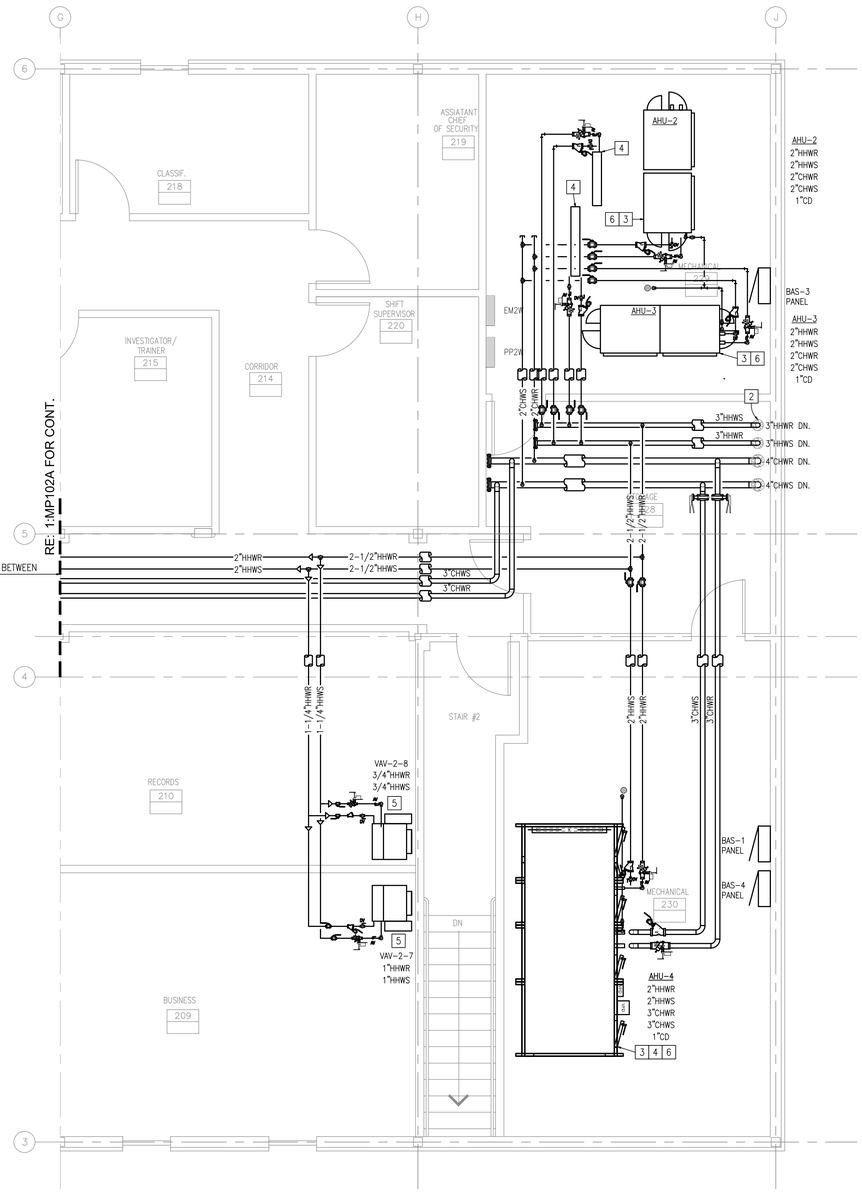
SHEET NUMBER:

MP102

40 OF 111 SHEETS
MARCH 21, 2023



1 **LEVEL 2 MECHANICAL PIPING NEW WORK PLAN**
SCALE: 1/4" = 1'-0"



2 **LEVEL 2 MECHANICAL PIPING NEW WORK PLAN**
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. ROUTE PIPING DOWN THROUGH FLOOR IN LOCATION SHOWN. REFERENCE 1:MP101A FOR CONTINUATION.
2. ROUTE PIPING DOWN THROUGH FLOOR IN LOCATION SHOWN. REFERENCE 1:MP101B FOR CONTINUATION.
3. CONNECT NEW CHILLED WATER PIPING TO AIR HANDLING UNIT IN APPROXIMATE LOCATION SHOWN. TRANSITION PIPING AS NECESSARY FOR A COMPLETE INSTALLATION. RE: M500 SERIES DRAWINGS FOR AHU COIL PIPING CONNECTION DETAIL.
4. CONNECT NEW HEATING HOT WATER PIPING TO HEATING COIL IN APPROXIMATE LOCATION SHOWN. TRANSITION PIPING AS NECESSARY FOR A COMPLETE INSTALLATION. RE: M500 SERIES DRAWINGS FOR COIL PIPING CONNECTION DETAIL.
5. CONNECT NEW HEATING HOT WATER PIPING TO TERMINAL UNIT IN APPROXIMATE LOCATION SHOWN. TRANSITION PIPING AS NECESSARY FOR A COMPLETE INSTALLATION. RE: M500 SERIES DRAWINGS FOR HEATING HOT WATER COIL PIPING DIAGRAM.
6. CONNECT NEW CONDENSATE PIPING TO AIR HANDLING UNIT IN APPROXIMATE LOCATION SHOWN AND ROUTE TO EXISTING FLOOR DRAIN. PIPING SHALL SLOPE AT 1/8" PER FOOT TOWARD DRAIN AND TERMINATE WITH 6" AIR GAP.

GENERAL NOTES:
1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.
3) RE: SHEETS M700 SERIES FOR RISER DIAGRAM.

STATE OF MISSOURI
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SHEET TITLE:
LEVEL 2
MECH PIPING
NEW WORK PLAN

SHEET NUMBER:
MP102A

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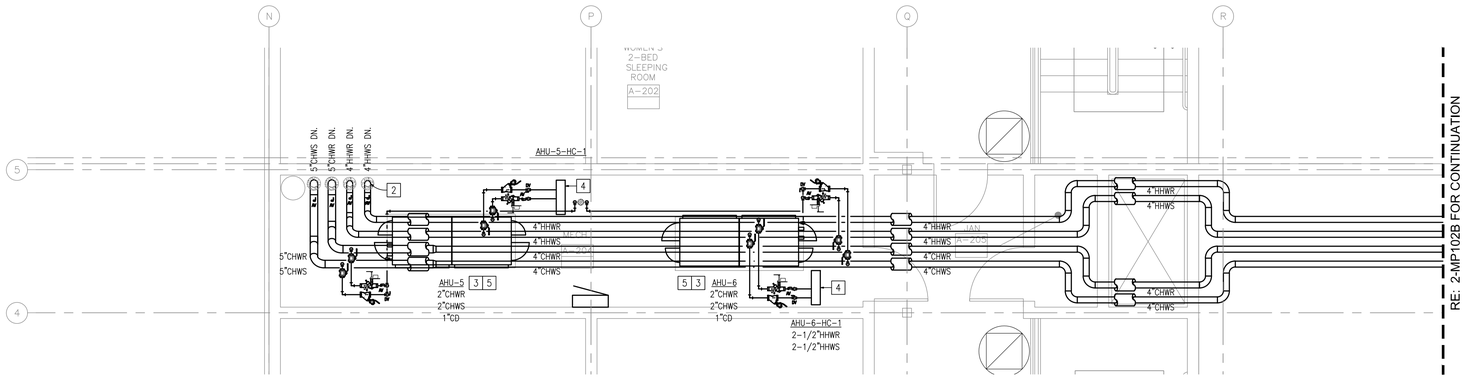
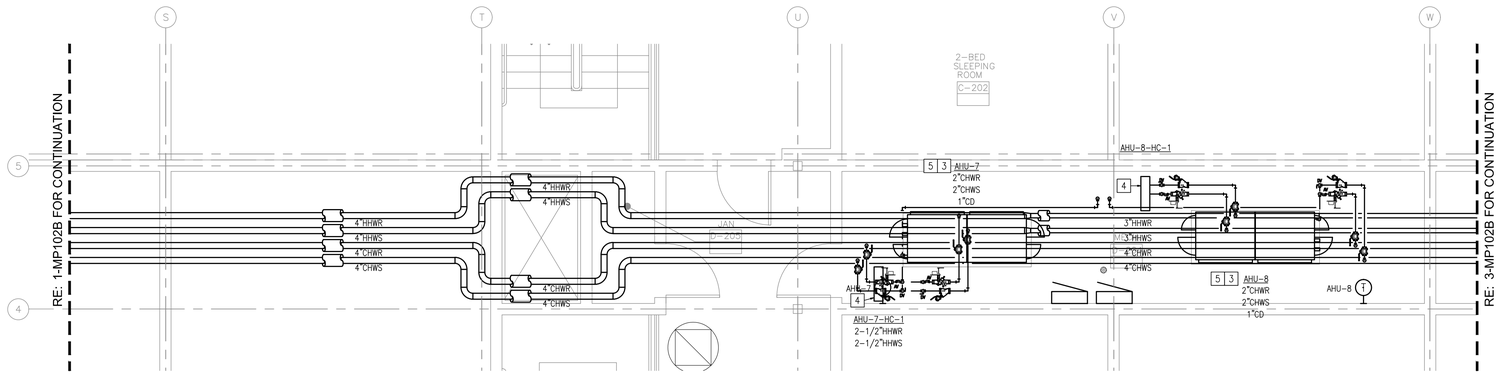
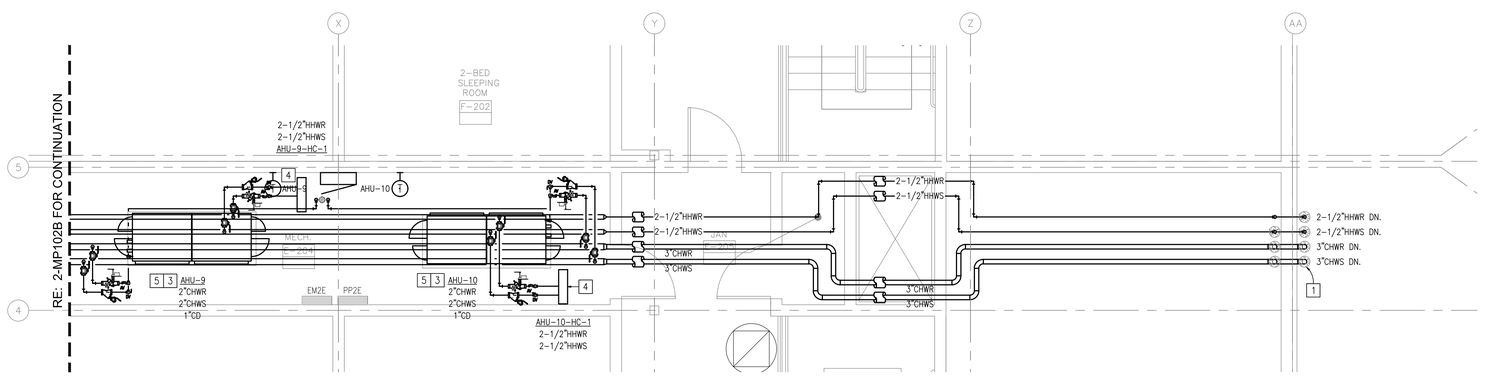
MARCH 21, 2023



1 LEVEL 2 MECHANICAL PIPING NEW WORK PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 2 MECHANICAL PIPING NEW WORK PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 2 MECHANICAL PIPING NEW WORK PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. ROUTE PIPING DOWN THROUGH FLOOR IN LOCATION SHOWN. REFERENCE 4:MP101D FOR CONTINUATION.
2. ROUTE PIPING DOWN THROUGH FLOOR IN LOCATION SHOWN. REFERENCE 5:MP101D FOR CONTINUATION.
3. CONNECT NEW CHILLED WATER PIPING TO AIR HANDLING UNIT IN APPROXIMATE LOCATION SHOWN. TRANSITION PIPING AS NECESSARY FOR A COMPLETE INSTALLATION. RE: M500 SERIES DRAWINGS FOR AHU COIL PIPING CONNECTION DETAIL.
4. CONNECT NEW HEATING HOT WATER PIPING TO HEATING COIL IN APPROXIMATE LOCATION SHOWN. TRANSITION PIPING AS NECESSARY FOR A COMPLETE INSTALLATION. RE: M500 SERIES DRAWINGS FOR COIL PIPING CONNECTION DETAIL.
5. CONNECT NEW CONDENSATE PIPING TO AIR HANDLING UNIT IN APPROXIMATE LOCATION SHOWN AND ROUTE TO EXISTING FLOOR DRAIN. PIPING SHALL SLOPE AT 1/8" PER FOOT TOWARD DRAIN AND TERMINATE WITH 6" AIR GAP.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.
3) RE: SHEETS M700 SERIES FOR RISER DIAGRAM

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PROJECT # C1904-01
SITE # 7027
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CAD DWG FILE:
DRAWN BY: JCM
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

LEVEL 2
MECH PIPING
NEW WORK PLAN

SHEET NUMBER:

MP102B

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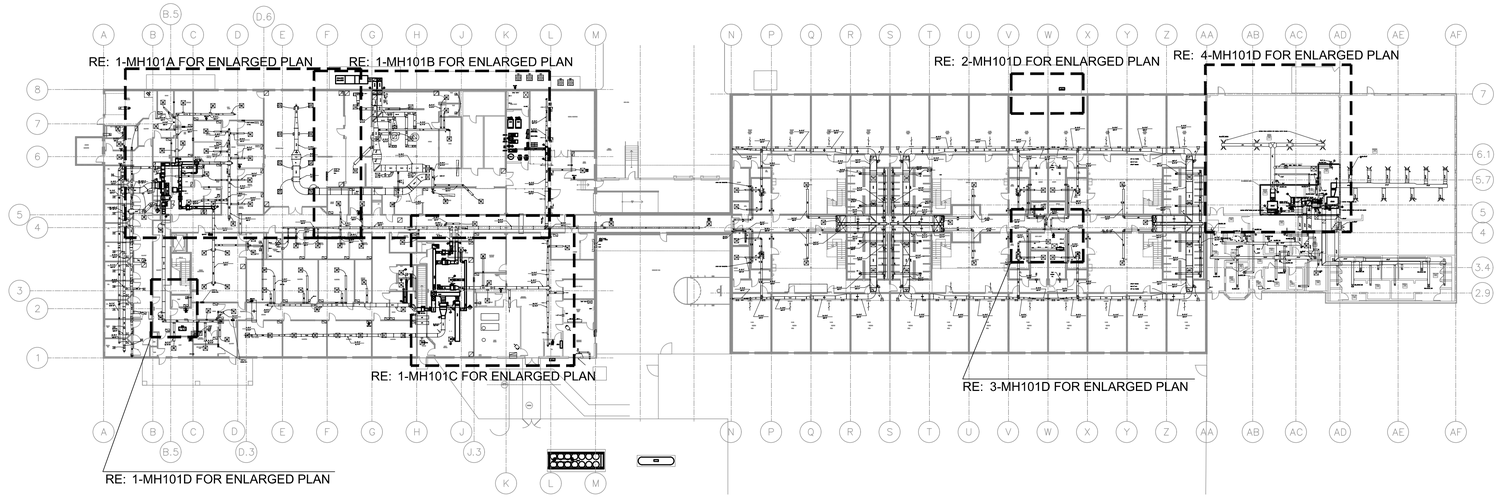
MARCH 21, 2023



1 LEVEL 1 OVERALL MECHANICAL HVAC NEW WORK PLAN

SCALE: 1/32" = 1'-0"

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STATE OF MISSOURI
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CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1 OVERALL MECH HVAC NEW WORK PLAN

SHEET NUMBER:

MH101

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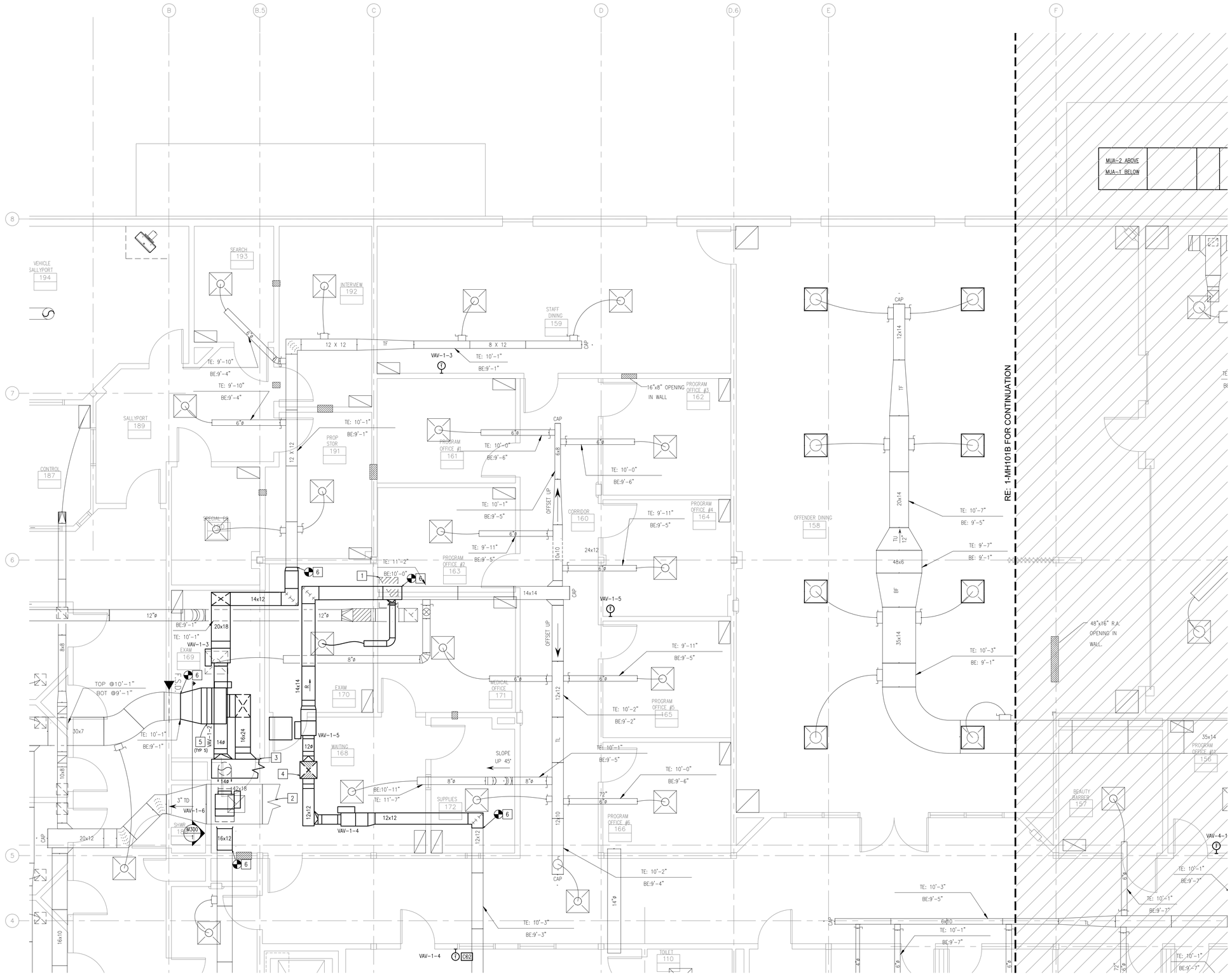
MARCH 21, 2023



1 LEVEL 1 MECHANICAL HVAC NEW WORK PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. EXISTING 32x20 RETURN AIR OPENING IN FLOOR SLAB WITH FIRE DAMPER. RE:1-MH102A FOR CONTINUATION.
2. EXISTING 42x18 RETURN AIR DUCT THRU WALL. RE:1-MH102A FOR CONTINUATION.
3. NEW 20x26 SUPPLY AIR DUCT THRU WALL. RE:1-MH102A FOR CONTINUATION.
4. NEW 18x18 SUPPLY DUCT FROM FLOOR ABOVE. RE:1-MH102A FOR CONTINUATION.
5. PROVIDE NEW TERMINAL UNIT IN LOCATION SHOWN. SUPPORT FROM STRUCTURE ABOVE. INLET DUCT SHALL MATCH SIZE OF BOX INLET. PROVIDE TRANSITION AT OUTLET AS NECESSARY TO MATCH DUCT DIMENSION. INSTALL PER MANUFACTURERS INSTRUCTIONS. RE: SHEET M601 FOR VAV BOX SCHEDULE AND M501 FOR BOX CONNECTION DETAIL.
6. CONNECT NEW SUPPLY DUCTWORK TO EXISTING IN LOCATION SHOWN.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.

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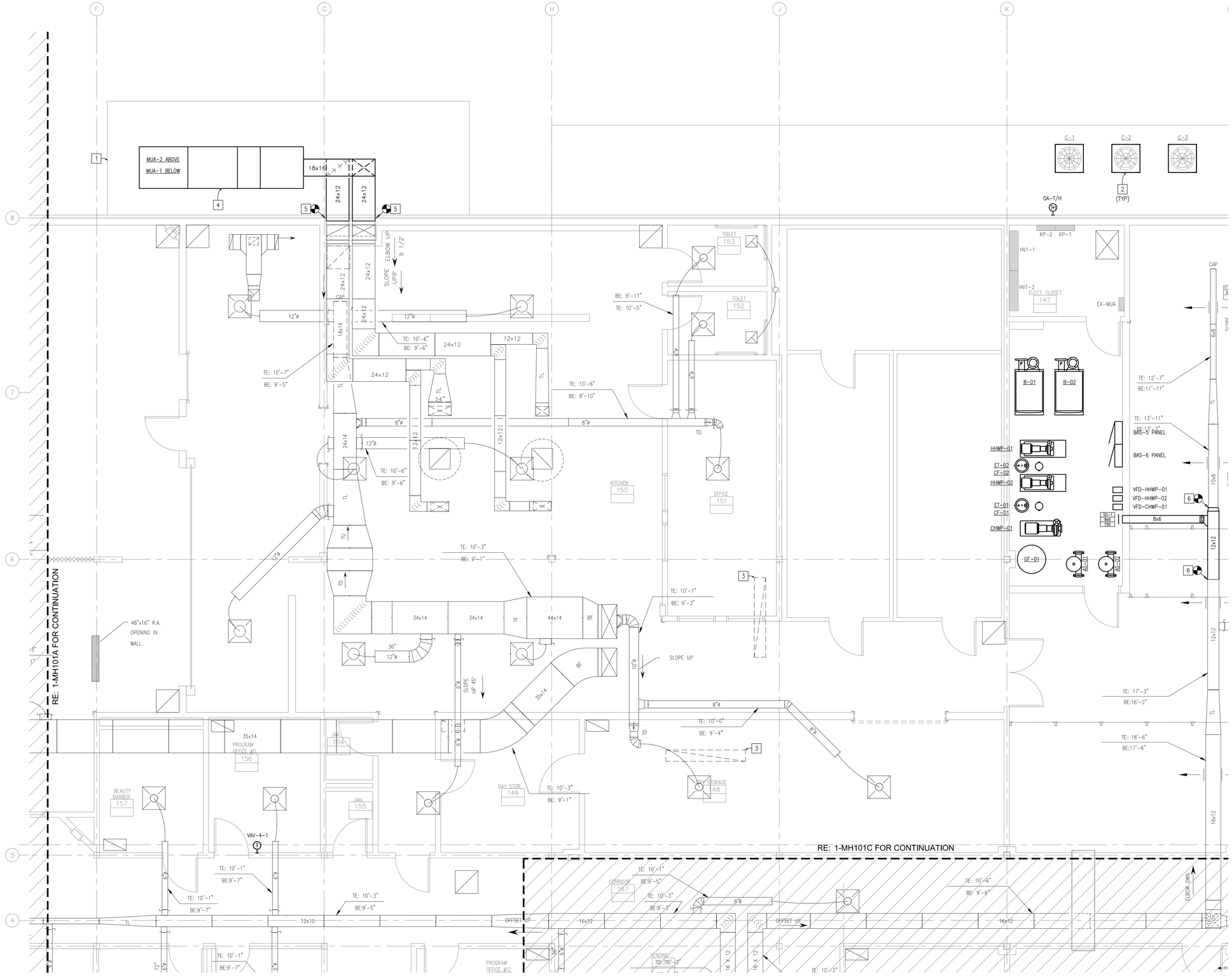
SHEET TITLE:

LEVEL 1
MECH HVAC
NEW WORK PLAN

SHEET NUMBER:

MH101A

44 OF 111 SHEETS
MARCH 21, 2023



KEYED NOTES:

1. EXTEND CONCRETE PAD AND FENCE 2' WEST OF EXISTING PAD FOR SUFFICIENT WALK AROUND CLEARANCE BEHIND MUA UNITS. RE: STRUCTURAL SHEETS.
2. EXISTING FREEZER/COOLER CONDENSING UNIT AND ALL ASSOCIATED REFRIGERANT PIPING TO REMAIN.
3. EXISTING 84x14 RETURN AIR OPENING IN FLOOR SLAB WITH FIRE DAMPER. RE:MH102A FOR CONTINUATION.
4. PROVIDE NEW MAKEUP AIR UNITS IN LOCATION SHOWN. UNITS TO BE STACKED
5. CONNECT NEW OUTDOOR AIR DUCTWORK TO EXISTING DUCTWORK. ROUTE THROUGH EXISTING EXTERIOR OPENING.
6. CONNECT NEW SUPPLY AIR DUCTWORK TO EXISTING IN LOCATION SHOWN.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.

1 LEVEL 1 MECHANICAL HVAC NEW WORK PLAN
SCALE: 1/4" = 1'-0"

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MECH HVAC
NEW WORK PLAN

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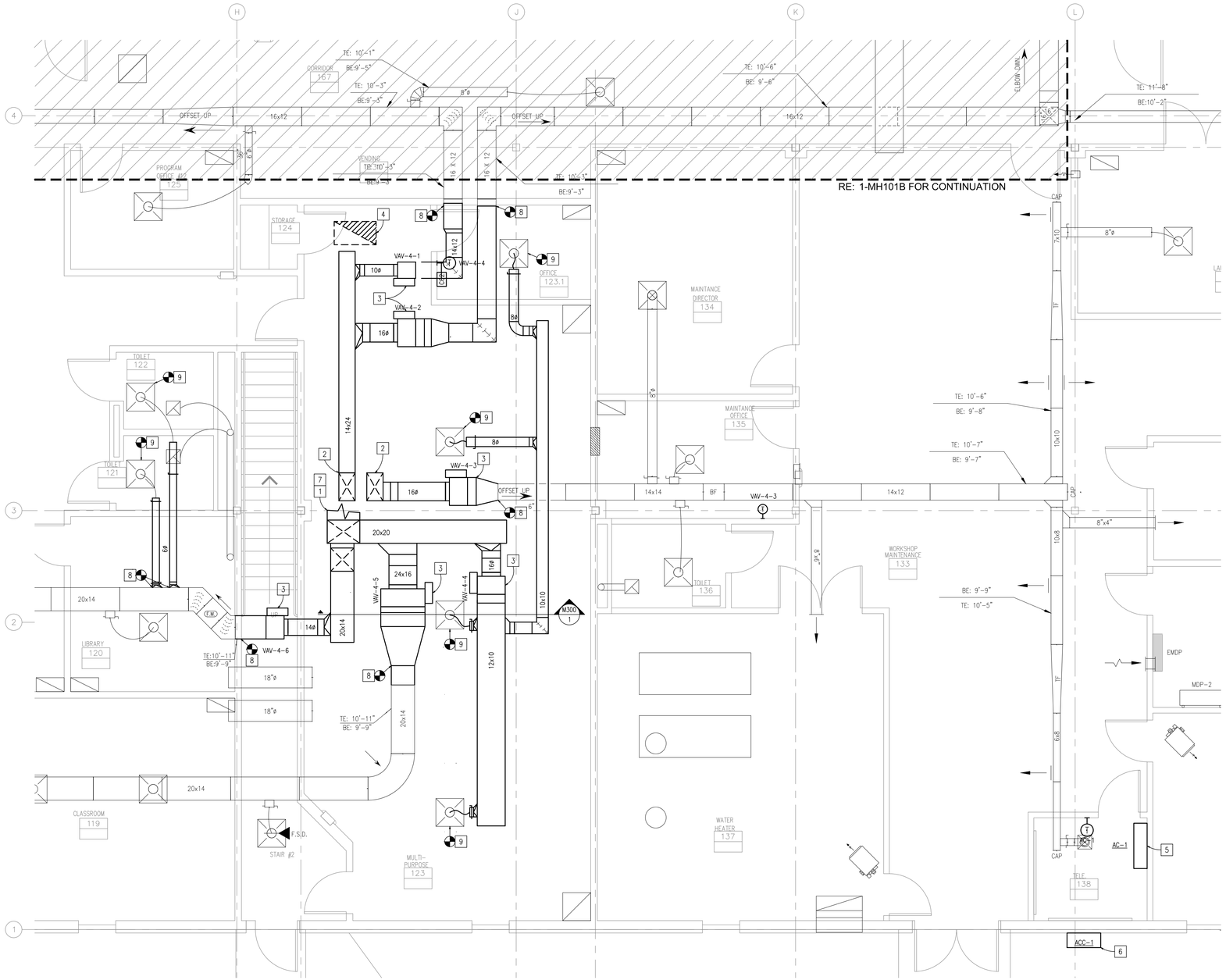
MH101B

45 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 1 MECHANICAL HVAC NEW WORK PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE NEW 20x28 SUPPLY AIR DUCT THRU WALL ON FLOOR ABOVE. RE:MH102A FOR CONTINUATION.
2. PROVIDE NEW 14x24 SUPPLY DUCT TO FLOOR ABOVE WITH FIRE DAMPER. RE:MH102A FOR CONTINUATION.
3. PROVIDE NEW TERMINAL UNIT IN LOCATION SHOWN. SUPPORT FROM STRUCTURE ABOVE. INLET DUCT SHALL MATCH SIZE OF BOX INLET. PROVIDE TRANSITION AT OUTLET AS NECESSARY TO MATCH DUCT DIMENSION. INSTALL PER MANUFACTURERS INSTRUCTIONS. RE: SHEET M601 FOR VAV BOX SCHEDULE AND M501 FOR BOX CONNECTION DETAIL.
4. PROVIDE NEW 36X20 RETURN AIR DUCT WITH FIRE DAMPER TO FLOOR ABOVE. RE:MH102A FOR CONTINUATION.
5. PROVIDE NEW AC UNIT. MOUNT ABOVE EXISTING ELECTRICAL PANELS. RE: M600 SERIES FOR AIR CONDITIONING SCHEDULE.
6. PROVIDE NEW CONDENSING UNIT PER MANUFACTURERS RECOMMENDATIONS. MOUNT UNIT ON SIDE OF BUILDING IN LOCATION SHOWN.
7. PROVIDE NEW FIRE DAMPER IN DUCTWORK.
8. CONNECT TO EXISTING SUPPLY DUCTWORK IN LOCATION SHOWN. FIELD VERIFY EXISTING DUCTWORK TYPE AND MATCH.
9. CONNECT TO EXISTING SUPPLY DIFFUSER IN LOCATION SHOWN. FIELD VERIFY EXISTING SIZE AND PROVIDE DUCTWORK TO MATCH.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.

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DRAWN BY: RJR
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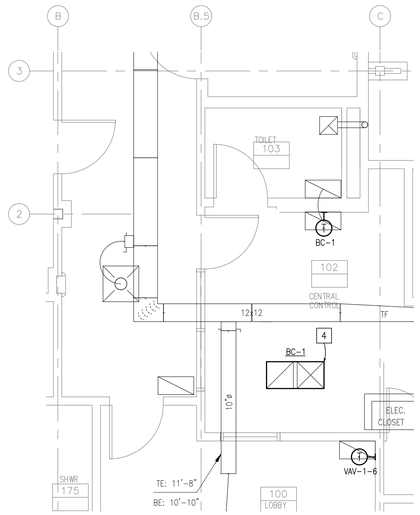
SHEET TITLE:

LEVEL 1
MECH HVAC
NEW WORK PLAN

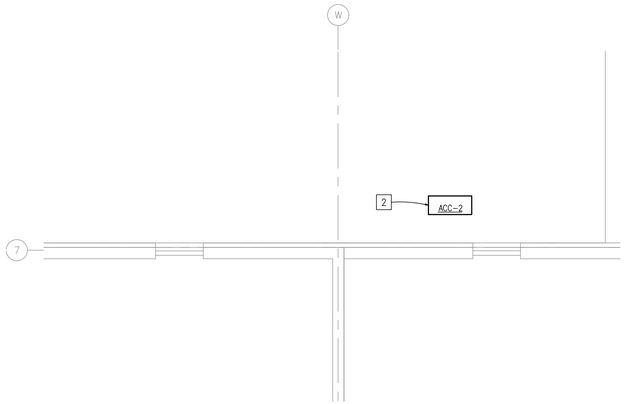
SHEET NUMBER:

MH101C

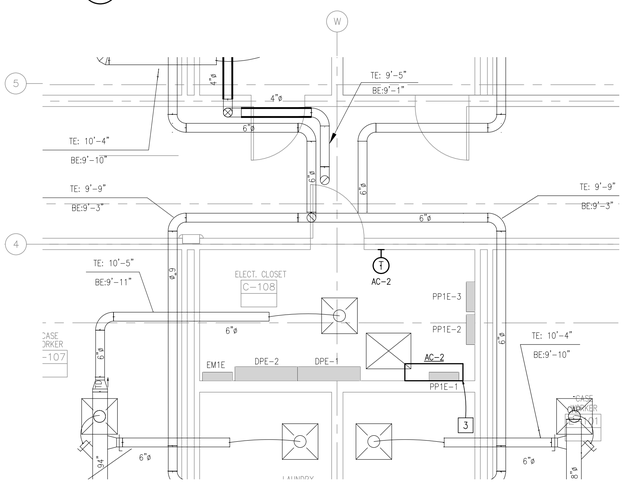
46 OF 111 SHEETS
MARCH 21, 2023



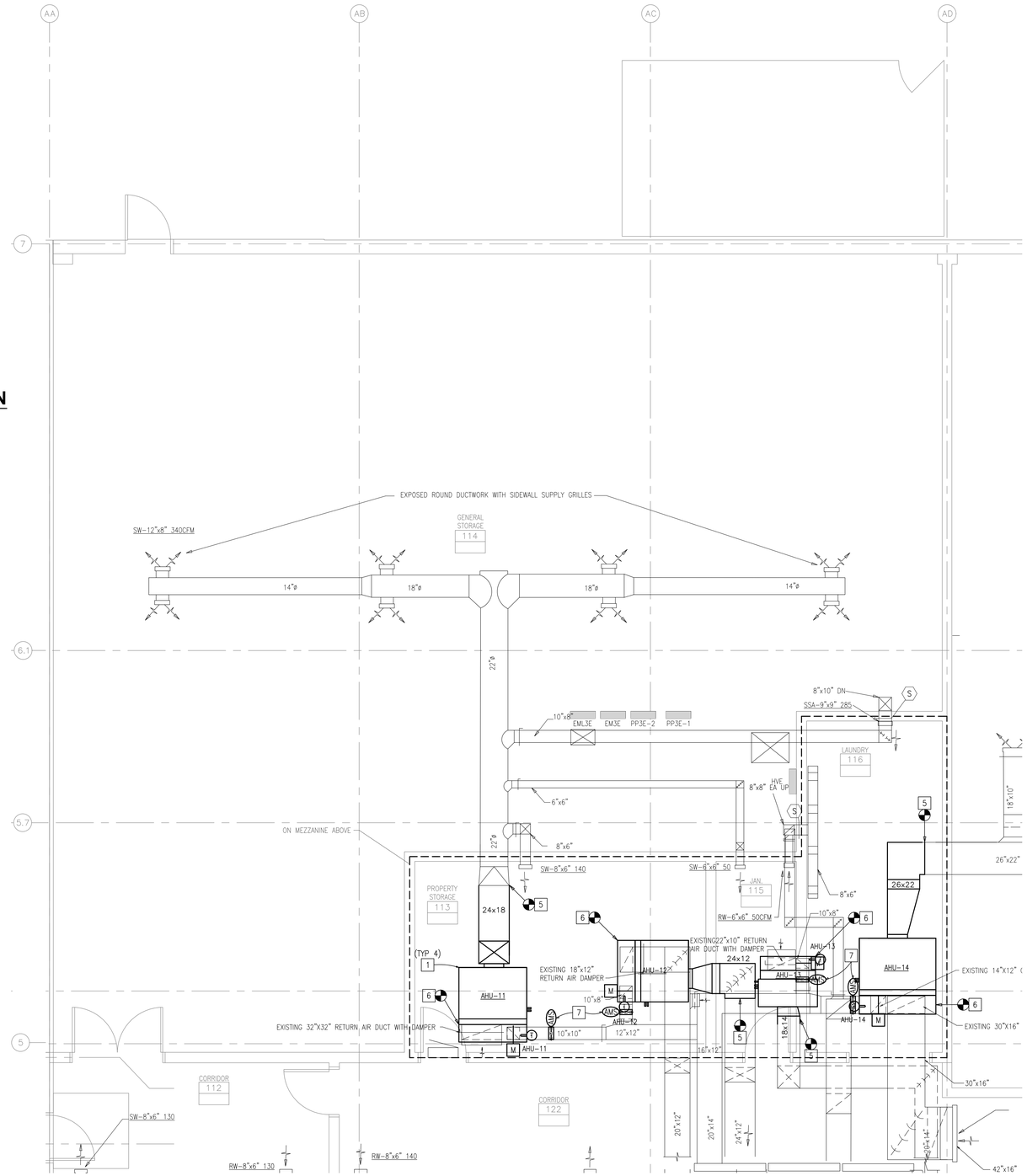
1 LEVEL 1 MECHANICAL HVAC NEW WORK PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 1 MECHANICAL HVAC NEW WORK PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 1 MECHANICAL HVAC NEW WORK PLAN
SCALE: 1/4" = 1'-0"



4 LEVEL 1 MECHANICAL HVAC NEW WORK PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE NEW AIR HANDLING UNIT LOCATED ON MEZZANINE ABOVE. RE: M600 SERIES FOR AIR HANDLING UNIT SCHEDULE.
2. PROVIDE NEW CONDENSING UNIT ON EXISTING PAD.
3. PROVIDE NEW AC UNIT. MOUNT ABOVE EXISTING ELECTRICAL PANELS. RE: M600 SERIES FOR AIR CONDITIONING UNIT SCHEDULE.
4. PROVIDE NEW BLOWER COIL UNIT. MOUNT ABOVE CEILING AS SHOWN. RE: M600 SERIES FOR BLOWER COIL UNIT SCHEDULE.
5. CONNECT TO EXISTING SUPPLY DUCTWORK IN LOCATION SHOWN. FIELD VERIFY EXISTING DUCTWORK TYPE AND PROVIDE NEW TO MATCH.
6. CONNECT TO EXISTING RETURN DUCTWORK IN LOCATION SHOWN. FIELD VERIFY EXISTING DUCTWORK TYPE AND PROVIDE NEW TO MATCH.
7. PROVIDE OUTSIDE AIRFLOW MEASURING STATION. REFERENCE SHEET M603 FOR MORE INFORMATION. COORDINATE WORK WITH CONTROLS CONTRACTOR.

GENERAL NOTES:
1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.

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DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1
MECH HVAC
NEW WORK PLAN

SHEET NUMBER:

MH101D

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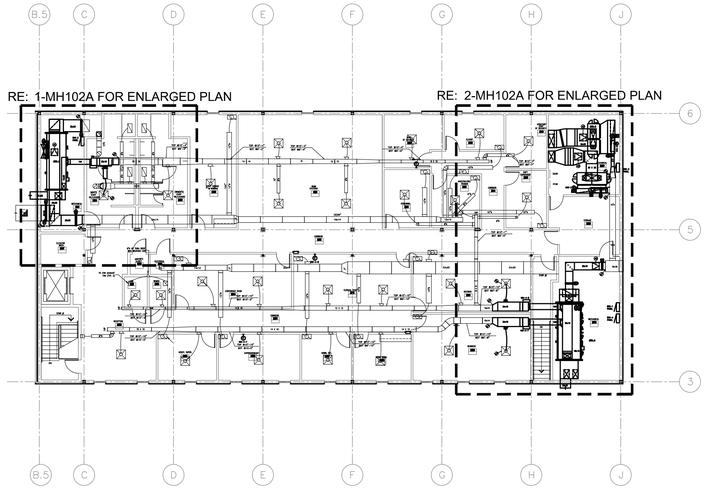
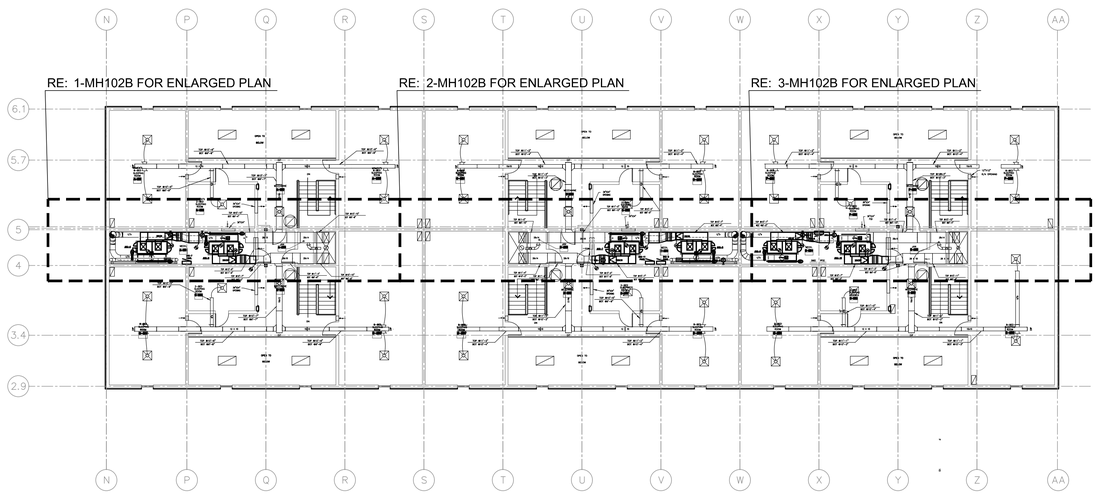
MARCH 21, 2023





1 LEVEL 2 MECHANICAL OVERALL HVAC NEW WORK PLAN
SCALE: 1/16" = 1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
PROFESSIONAL ENGINEER

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

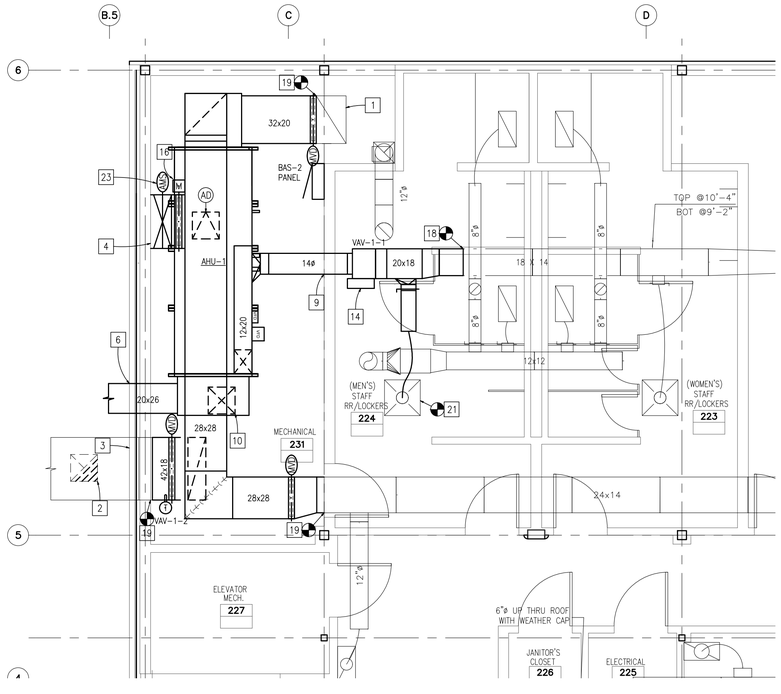
SHEET TITLE:

LEVEL 2 OVERALL MECH HVAC NEW WORK PLAN

SHEET NUMBER:

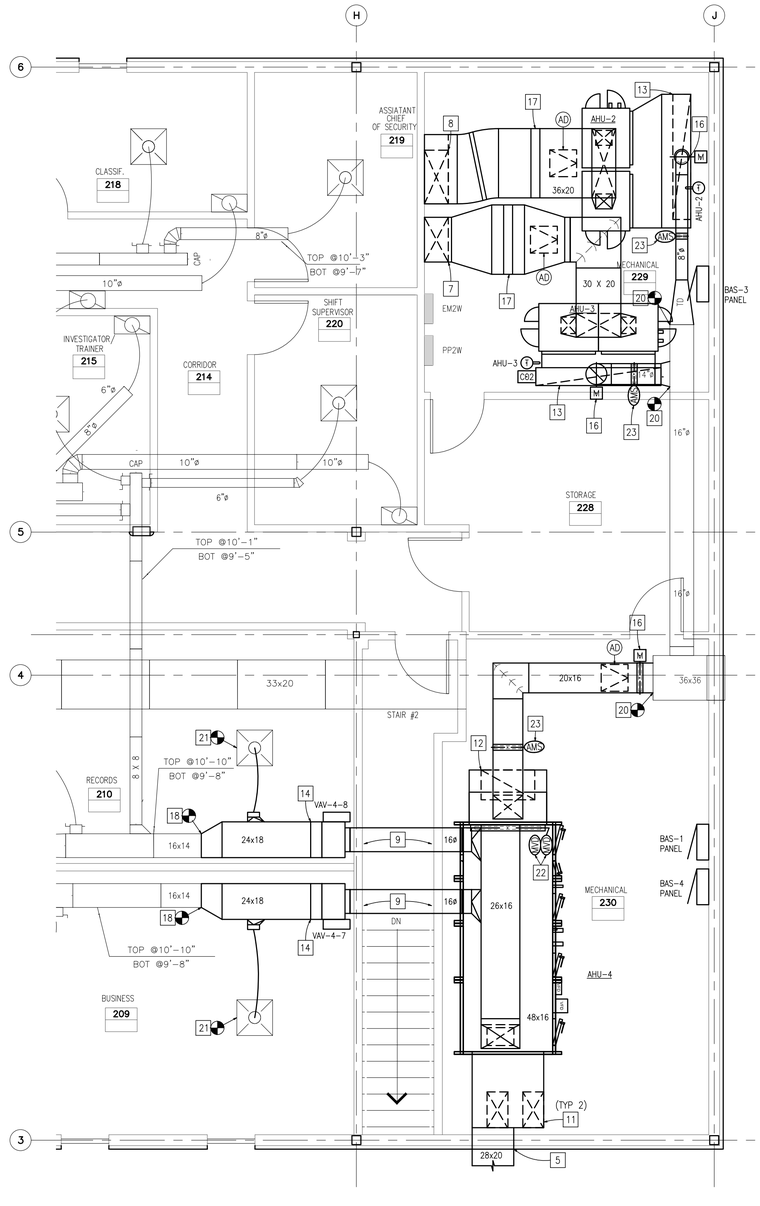
MH102

48 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 2 MECHANICAL HVAC NEW WORK PLAN

SCALE: 1/4" = 1'-0"



2 LEVEL 2 MECHANICAL HVAC NEW WORK PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. CONNECT NEW RETURN AIR DUCTWORK TO EXISTING 32x20 OPENING IN FLOOR SLAB WITH FIRE DAMPER. RE:MH101A FOR CONTINUATION.
2. EXISTING 18X18 EXHAUST DUCT UP TO EF-20 TO REMAIN.
3. EXISTING 42x18 RETURN AIR DUCT THRU WALL. RE:MH101A FOR CONTINUATION.
4. EXISTING 36x12 OUTSIDE AIR OPENING THRU WALL ABOVE FIRST FLOOR ROOF LEVEL.
5. NEW 20x28 SUPPLY AIR DUCT THRU WALL WITH FIRE DAMPER. RE:MH101C FOR CONTINUATION.
6. NEW 20x26 SUPPLY AIR DUCT THRU WALL WITH FIRE DAMPER. RE:MH101A FOR CONTINUATION.
7. CONNECT EXISTING SUPPLY AIR DUCTWORK FROM FLOOR BELOW TO NEW 30x16 SUPPLY AIR DUCT IN LOCATION SHOWN.
8. CONNECT EXISTING SUPPLY AIR DUCTWORK FROM FLOOR BELOW TO NEW 36x16 SUPPLY AIR DUCT IN LOCATION SHOWN.
9. MODIFY EXISTING WALL OPENING FOR NEW SUPPLY AIR DUCTWORK. INFILL EXCESS SPACE AROUND DUCTWORK.
10. NEW 18x18 SUPPLY DUCT TO FLOOR BELOW. RE:MH101A FOR CONTINUATION.
11. NEW 14x24 SUPPLY DUCT TO FLOOR BELOW. REMH101C FOR CONTINUATION.
12. PROVIDE FIRE DAMPER IN NEW 20x36 RETURN AIR DUCT. DUCT TO BE ROUTED THROUGH NEW OPENING IN FLOOR SLAB. RE:MH101C FOR CONTINUATION.
13. CONNECT NEW RETURN AIR DUCTWORK TO EXISTING 84x14 OPENING IN FLOOR SLAB WITH FIRE DAMPER. RE:MH101B FOR CONTINUATION.
14. PROVIDE NEW TERMINAL UNIT IN LOCATION SHOWN. SUPPORT FROM STRUCTURE ABOVE. INLET DUCT SHALL MATCH SIZE OF BOX INLET. PROVIDE TRANSITION AT OUTLET AS NECESSARY TO MATCH DUCT DIMENSION. INSTALL PER MANUFACTURERS INSTRUCTIONS. RE: SHEET M601 FOR VAV BOX SCHEDULE AND M501 FOR BOX CONNECTION DETAIL.
15. PROVIDE NEW MANUAL VOLUME DAMPER IN VERTICAL DUCT DROP AND CONNECT TO EXISTING. TRANSITION DUCTWORK AS NECESSARY FOR A COMPLETE INSTALLATION.
16. PROVIDE MOTORIZED CONTROL DAMPER IN LOCATION SHOWN. DAMPERS SHALL OPEN WHEN THE ASSOCIATED AHU IS ENABLED. COORDINATE WORK WITH CONTROLS CONTRACTOR.
17. PROVIDE NEW HEATING HOT WATER COIL IN LOCATION SHOWN. SUPPORT FROM STRUCTURE ABOVE. INLET DUCT SHALL MATCH SIZE OF COIL. PROVIDE TRANSITION AS NECESSARY TO MATCH DUCT DIMENSION. INSTALL PER MANUFACTURERS INSTRUCTIONS. RE: M600 SERIES FOR HEATING HOT WATER COIL SCHEDULE.
18. CONNECT TO EXISTING SUPPLY DUCTWORK IN LOCATION SHOWN. FIELD VERIFY EXISTING DUCTWORK TYPE AND PROVIDE NEW TO MATCH.
19. CONNECT TO EXISTING RETURN DUCTWORK IN LOCATION SHOWN. FIELD VERIFY EXISTING DUCTWORK TYPE AND PROVIDE NEW TO MATCH.
20. CONNECT TO EXISTING OUTSIDE AIR DUCTWORK IN LOCATION SHOWN. FIELD VERIFY EXISTING DUCTWORK TYPE AND PROVIDE NEW TO MATCH.
21. CONNECT TO EXISTING SUPPLY DIFFUSER IN LOCATION SHOWN. FIELD VERIFY EXISTING DIFFUSER SIZE AND PROVIDE NEW DUCTWORK TO MATCH.
22. PROVIDE DAMPER QUADRANTS ON MANUFACTURER PROVIDED RETURN AIR DAMPERS IN LOCATION SHOWN FOR MANUAL ADJUSTMENT DURING TEST AND BALANCING. TYPICAL OF (2) RETURN AIR DAMPERS WITHIN UNIT.
23. PROVIDE OUTSIDE AIRFLOW MEASURING STATION. REFERENCE SHEET M603 FOR MORE INFORMATION. COORDINATE WORK WITH CONTROLS CONTRACTOR.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.

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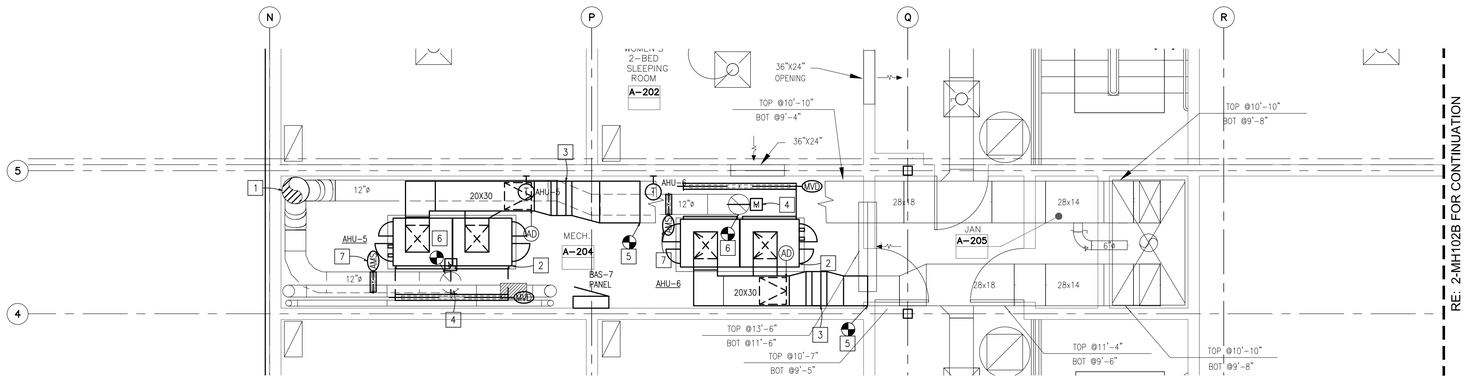
SHEET TITLE:

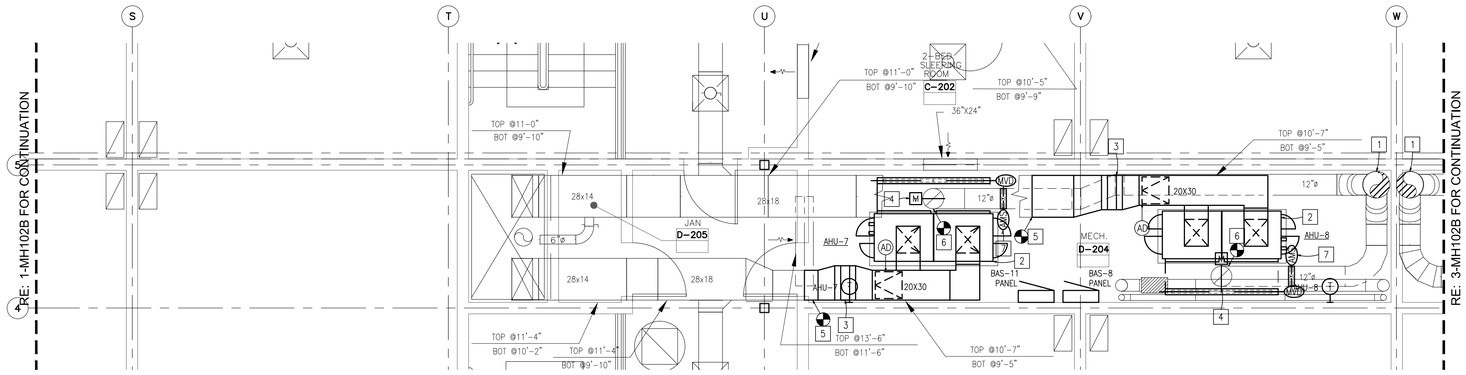
LEVEL 2
MECH HVAC
NEW WORK PLAN

SHEET NUMBER:

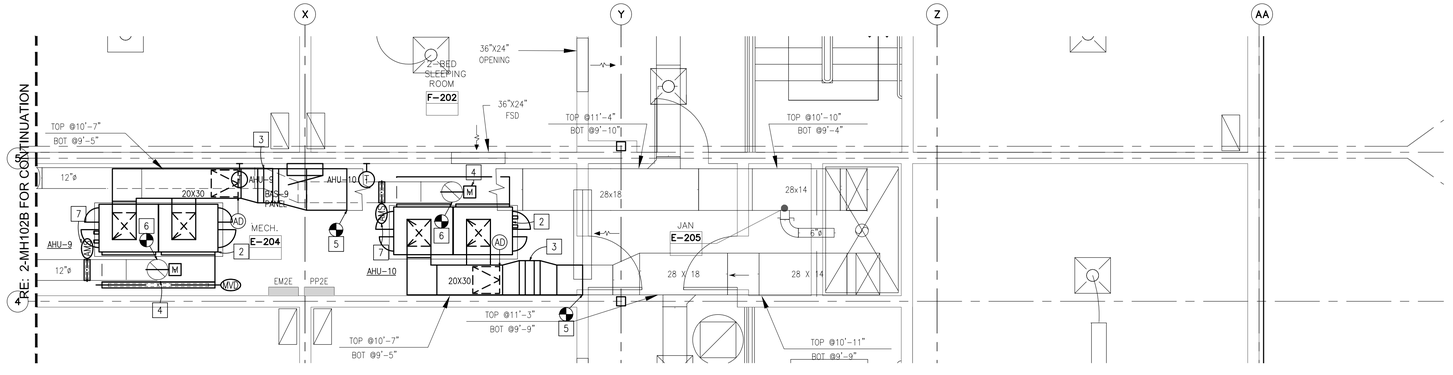
MH102A



1 LEVEL 2 MECHANICAL HVAC NEW WORK PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 2 MECHANICAL HVAC NEW WORK PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 2 MECHANICAL HVAC NEW WORK PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. EXISTING 16"ø O.A. UP THRU ROOF WITH WEATHER CAP.
2. MOUNT NEW AHU ON EXISTING CONCRETE HOUSING PAD SHOWN.
3. PROVIDE NEW HEATING HOT WATER COIL IN LOCATION SHOWN. SUPPORT FROM STRUCTURE ABOVE. INLET DUCT SHALL MATCH SIZE OF COIL. PROVIDE TRANSITION AS NECESSARY TO MATCH DUCT DIMENSION. INSTALL PER MANUFACTURERS INSTRUCTIONS. RE: M600 SERIES FOR HEATING HOT WATER COIL SCHEDULE.
4. PROVIDE NEW MOTORIZED CONTROL DAMPER IN VERTICAL DUCT DROP AND CONNECT TO EXISTING.
5. CONNECT TO EXISTING SUPPLY DUCTWORK IN LOCATION SHOWN. FIELD VERIFY EXISTING DUCTWORK TYPE AND PROVIDE NEW TO MATCH.
6. CONNECT TO EXISTING OUTSIDE AIR DUCTWORK IN LOCATION SHOWN. FIELD VERIFY EXISTING DUCTWORK TYPE AND PROVIDE NEW TO MATCH.
7. PROVIDE OUTSIDE AIRFLOW MEASURING STATION. REFERENCE SHEET M603 FOR MORE INFORMATION. COORDINATE WORK WITH CONTROLS CONTRACTOR.

GENERAL NOTES:

1) RE: SHEET M001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS M500 AND M600 SERIES FOR DETAILS AND EQUIPMENT SCHEDULES.

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CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

LEVEL 2
MECH HVAC
NEW WORK PLAN

SHEET NUMBER:

MH102B

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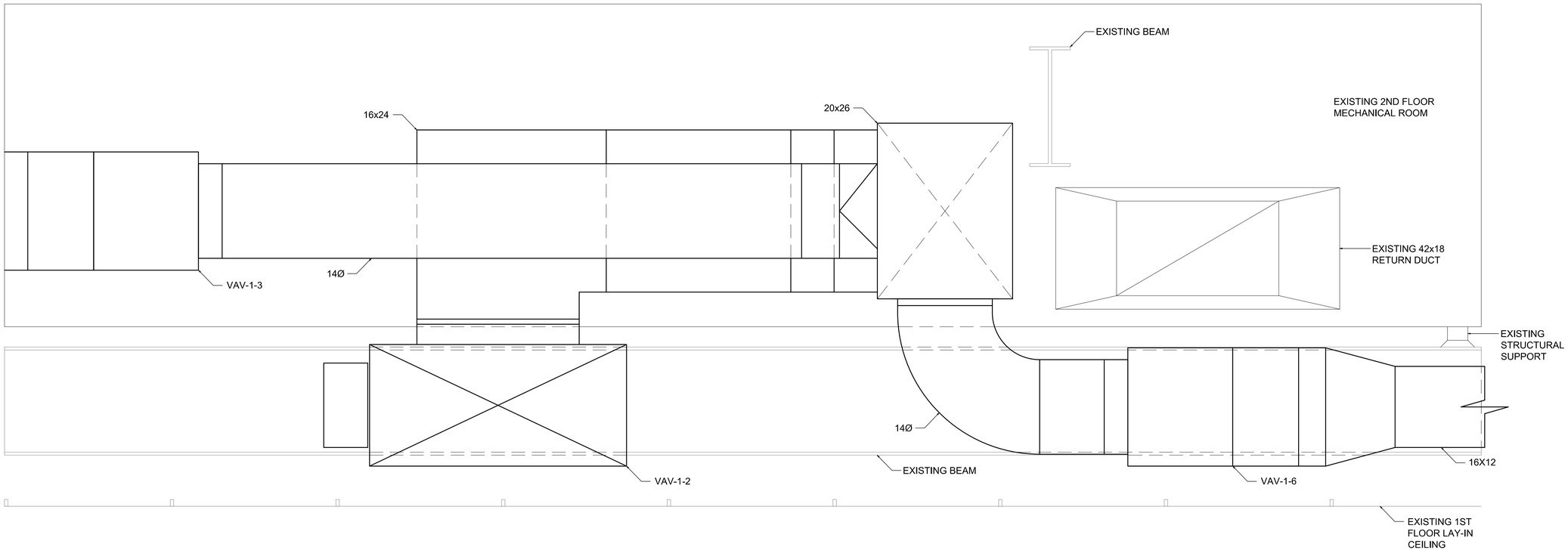
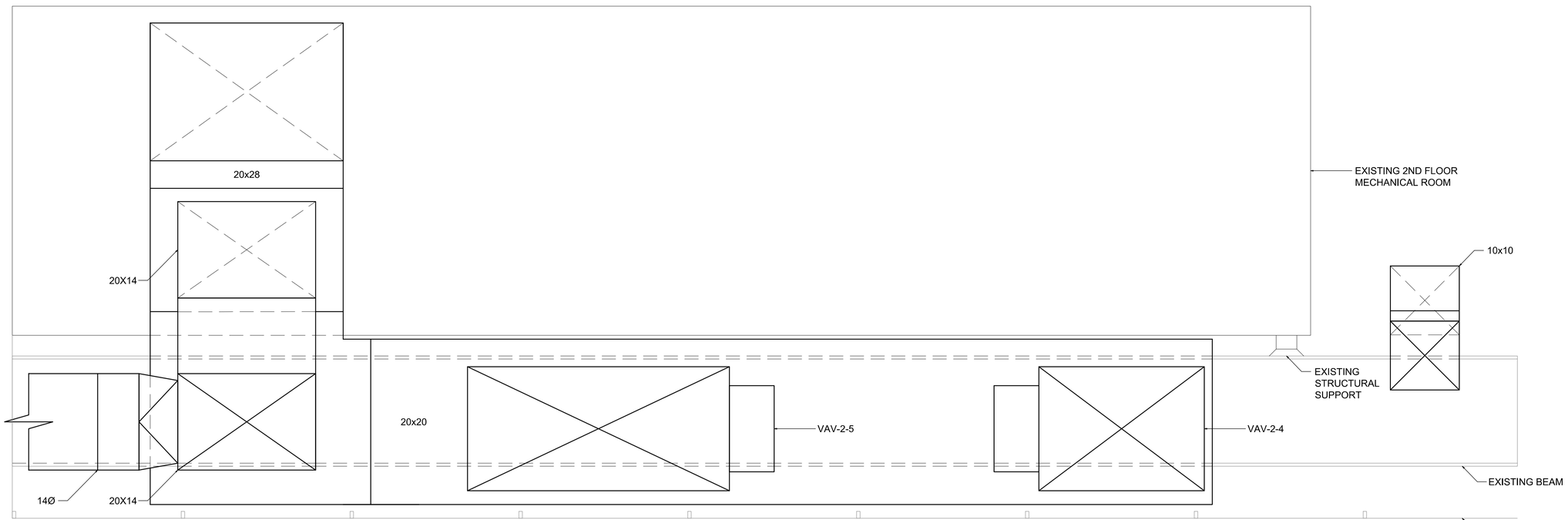
MARCH 21, 2023



1 **DUCTWORK SECTION ABOVE EXAMINATION ROOM**
SCALE: NOT TO SCALE



2 **DUCTWORK SECTION ABOVE MULTIPURPOSE ROOM**
SCALE: NOT TO SCALE

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DESIGNED BY: MRB

SHEET TITLE:

MECHANICAL
SECTION

SHEET NUMBER:

M301

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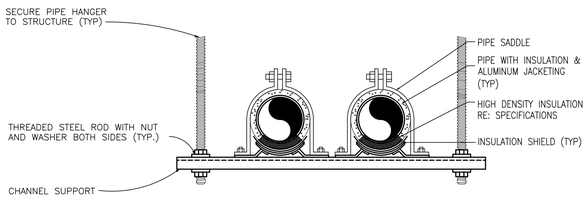
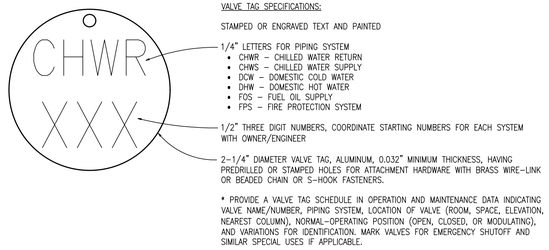
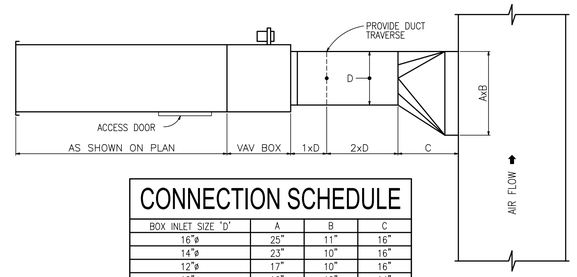
MARCH 21, 2023



1 TRAPEZE PIPE HANGER DETAIL
NOT TO SCALE



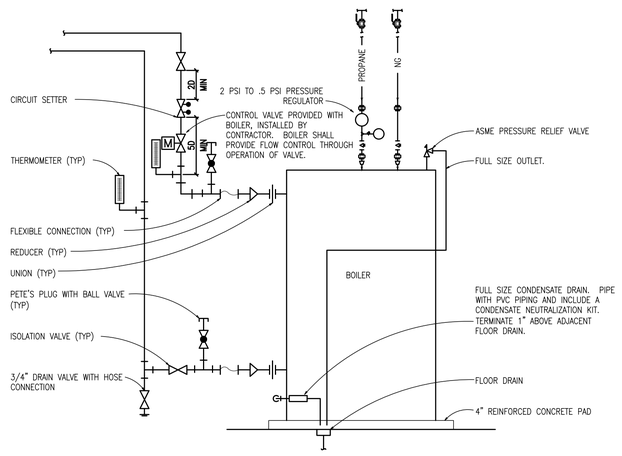
2 VALVE TAG DETAIL
NOT TO SCALE



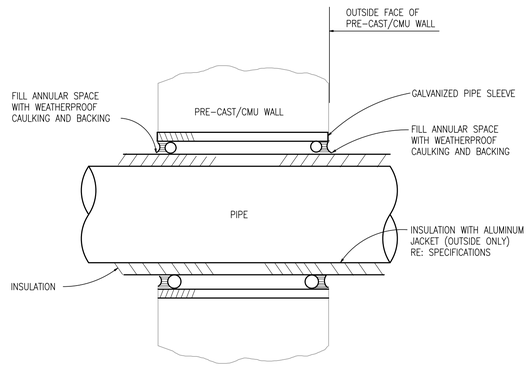
CONNECTION SCHEDULE

BOX INLET SIZE 'D'	A	B	C
16"ø	25"	11"	16"
14"ø	23"	10"	16"
12"ø	17"	10"	16"
10"ø	16"	10"	14"
8"ø	14"	7"	12"
6"ø	10"	6"	12"

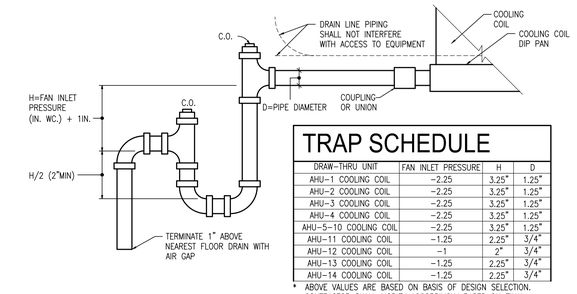
3 VAV BOX DETAIL
NOT TO SCALE



4 GAS FIRED HOT WATER BOILER PIPING DETAIL
NOT TO SCALE



5 PIPE SLEEVE DETAIL
NOT TO SCALE

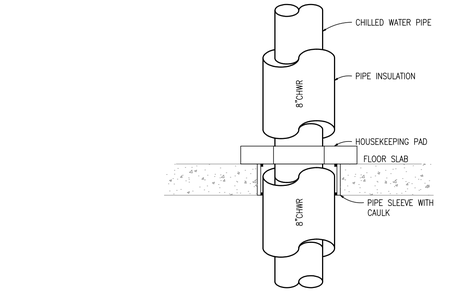


TRAP SCHEDULE

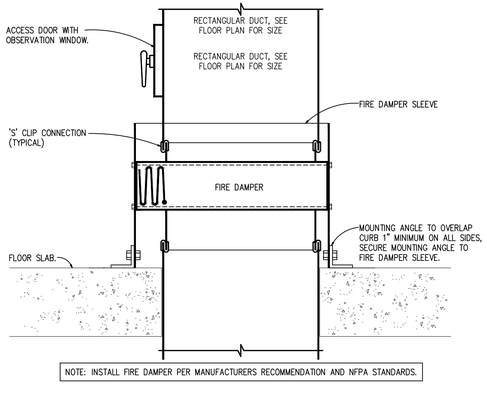
DRAW-THRU UNIT	FAN INLET PRESSURE	H	D
AHU-1 COOLING COIL	-2.25	3.25"	1.25"
AHU-2 COOLING COIL	-2.25	3.25"	1.25"
AHU-3 COOLING COIL	-2.25	3.25"	1.25"
AHU-4 COOLING COIL	-2.25	3.25"	1.25"
AHU-5-10 COOLING COIL	-2.25	3.25"	1.25"
AHU-11 COOLING COIL	-1.25	2.25"	3/4"
AHU-12 COOLING COIL	-1	2"	3/4"
AHU-13 COOLING COIL	-1.25	2.25"	3/4"
AHU-14 COOLING COIL	-1.25	2.25"	3/4"

* ABOVE VALUES ARE BASED ON BASIS OF DESIGN SELECTION. CONTRACTOR SHALL MODIFY ACCORDINGLY BASED ON FINAL APPROVED SUBMITTALS.

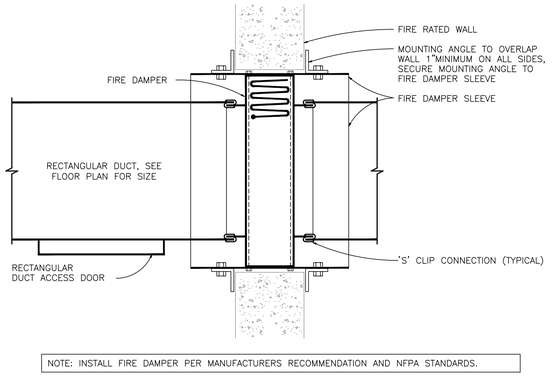
6 CONDENSATE DRAIN DRAW-THRU UNIT DETAIL
NOT TO SCALE



7 FLOOR PENETRATION DETAIL
NOT TO SCALE



8 HORIZONTAL FIRE DAMPER DETAIL
NOT TO SCALE



9 DUCTED FIRE DAMPER DETAIL
NOT TO SCALE

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CAD DWG FILE:
DRAWN BY: RJR
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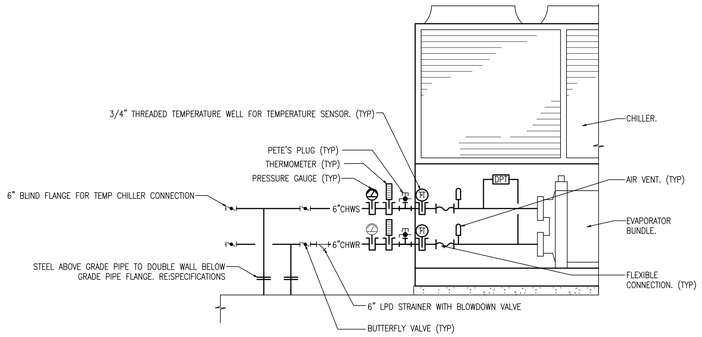
DESIGNED BY: MRB

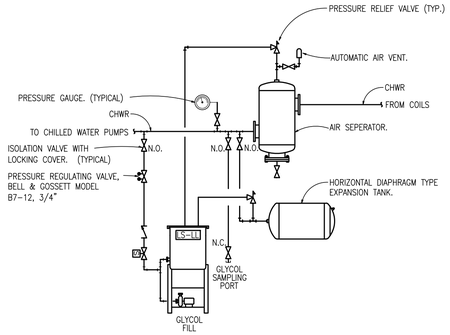
SHEET TITLE:
MECHANICAL DETAILS

SHEET NUMBER:
M501

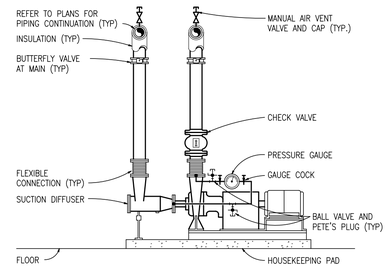
52 OF 111 SHEETS
MARCH 21, 2023



1 TYPICAL CHILLER CONNECTION DETAIL
NOT TO SCALE



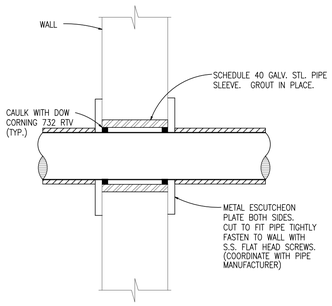
2 AIR SEPARATOR, MAKE-UP WATER & EXPANSION TANK DETAIL
NOT TO SCALE



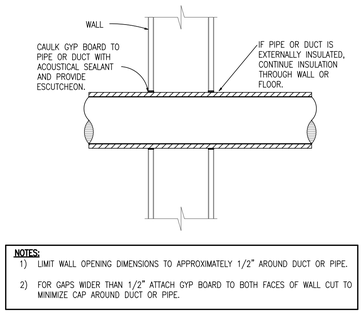
3 BASE MOUNTED PUMP DETAIL
NOT TO SCALE

NOTE: ACTUAL DIMENSIONS OF HOUSEKEEPING PADS TO BE 6" BIGGER (EACH WAY, 12" TOTAL) THAN UNIT PLACED ON TOP OF IT. COORDINATE CONCRETE AND ANCHORAGE INFORMATION WITH STRUCTURAL DRAWINGS.

4 HOUSEKEEPING PAD DETAIL
NOT TO SCALE

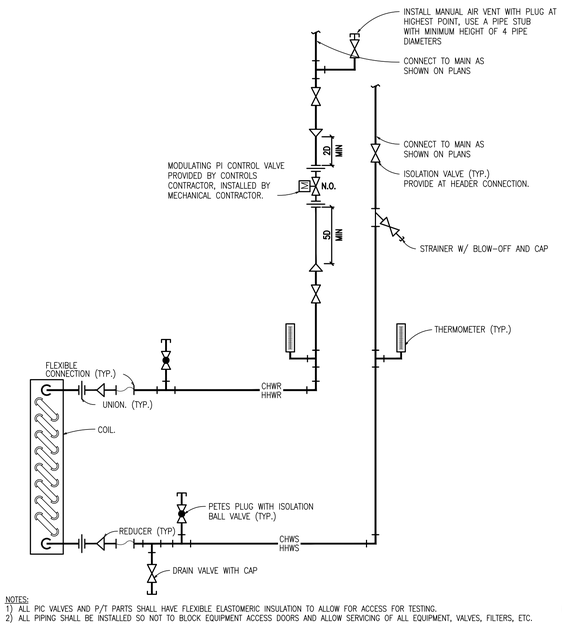


5 PIPE/DUCT THROUGH EXTEIOR WALL DETAIL
NOT TO SCALE



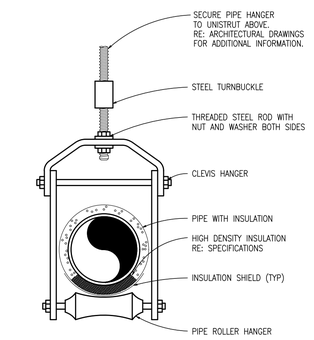
NOTES:
1) LIMIT WALL OPENING DIMENSIONS TO APPROXIMATELY 1/2" AROUND DUCT OR PIPE.
2) FOR GAPS WIDER THAN 1/2" ATTACH GYP BOARD TO BOTH FACES OF WALL CUT TO MINIMIZE CAP AROUND DUCT OR PIPE.

6 PIPE/DUCT THROUGH INTERIOR WALL DETAIL
NOT TO SCALE



NOTES:
1) ALL PIC VALVES AND P/T PARTS SHALL HAVE FLEXIBLE ELASTOMERIC INSULATION TO ALLOW FOR ACCESS FOR TESTING.
2) ALL PIPING SHALL BE INSTALLED SO NOT TO BLOCK EQUIPMENT ACCESS DOORS AND ALLOW SERVICING OF ALL EQUIPMENT, VALVES, FILTERS, ETC.

7 TYPICAL SINGLE COIL AHU PIPING CONNECTION DIAGRAM
NOT TO SCALE (DUCT HEATING COIL AND VAV BOX HEATING SIMILAR)



8 PIPE HANGER DETAIL
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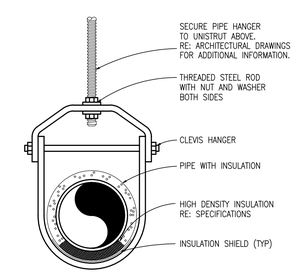

9 PIPE HANGER DETAIL
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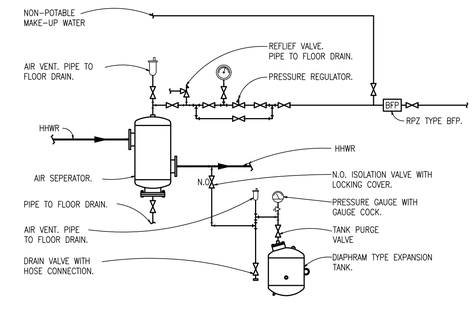

10 AIR CONTROL & EXPANSION TANK DETAIL (AIR SEPERATOR)
NOT TO SCALE

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CHECKED BY: MRB
DESIGNED BY: MRB

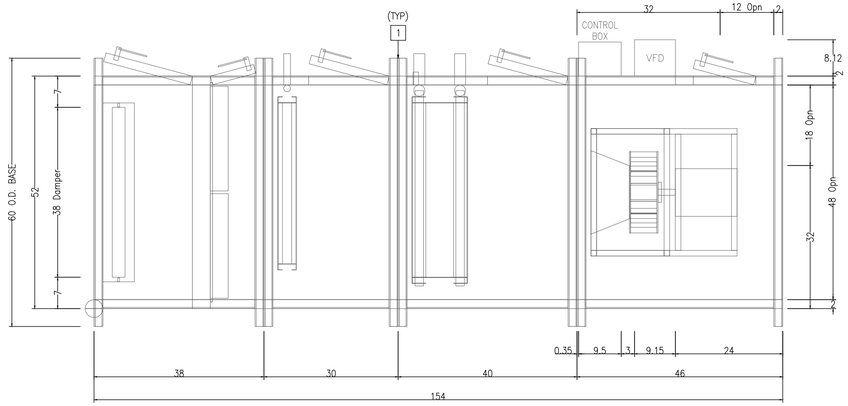
SHEET TITLE:
MECHANICAL DETAILS

SHEET NUMBER:
M502

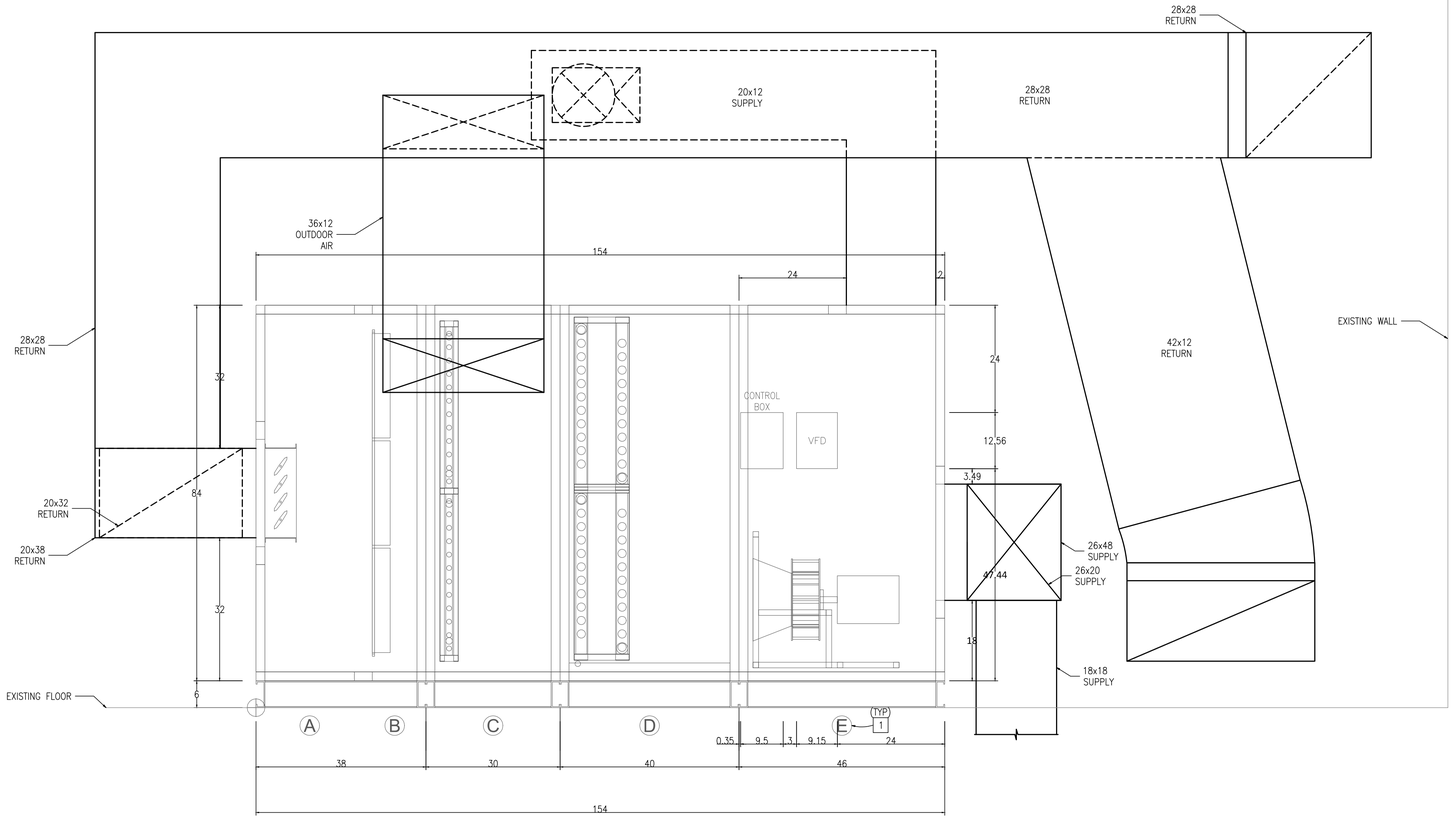
53 OF 111 SHEETS
MARCH 21, 2023

PLAN NOTES:

1. MAX SECTION SIZE SHALL BE 50" TO ALLOW FOR UNIT TO BE BROUGHT INTO MECHANICAL ROOM THROUGH ROOF OPENING.



1 AHU-1 PLAN VIEW
SCALE: 3/4"=1'-0"



3 AHU-1 ELEVATION VIEW
SCALE: 3/4"=1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
PROFESSIONAL ENGINEER

MEP ENGINEER:

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PH: (816) 228-3377

OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

MECHANICAL
AHU DETAILS

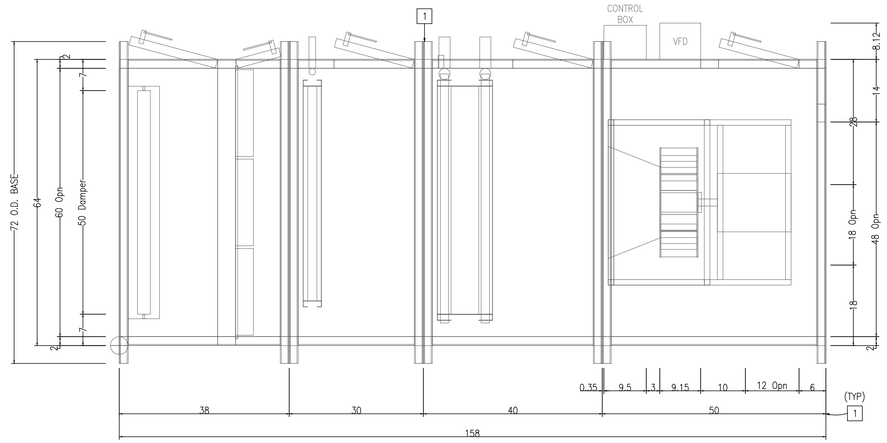
SHEET NUMBER:

M510

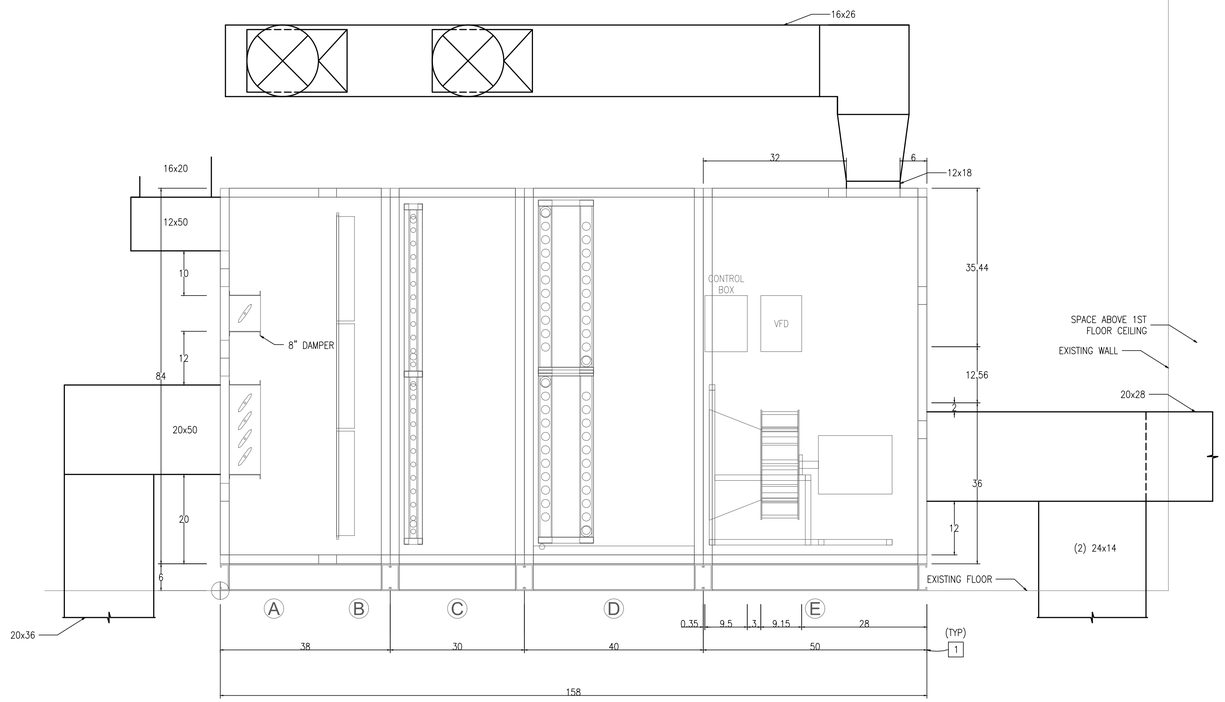
54 OF 111 SHEETS
MARCH 21, 2023

PLAN NOTES:

1 MAX SECTION SIZE SHALL BE 50" TO ALLOW FOR UNIT TO BE BROUGHT INTO MECHANICAL ROOM THROUGH ROOF OPENING.



2 AHU-4 PLAN VIEW
SCALE: 3/4"=1'-0"



4 AHU-4 ELEVATION VIEW
SCALE: 3/4"=1'-0"

STATE OF MISSOURI
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DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

MECHANICAL AHU DETAILS

SHEET NUMBER:

M511

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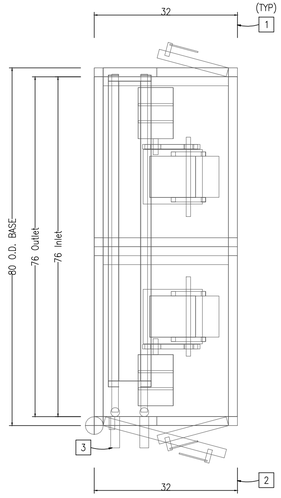
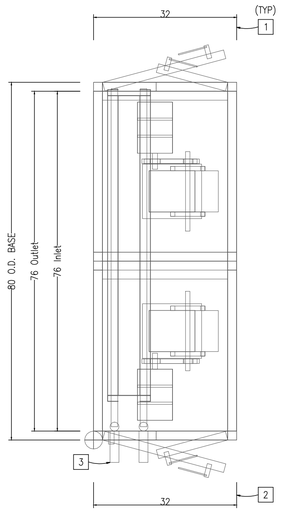
MARCH 21, 2023



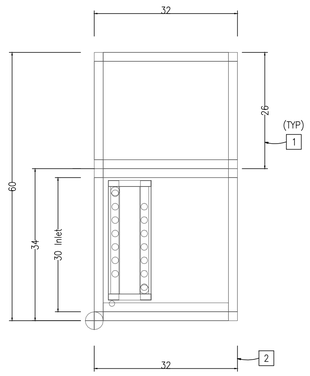
1 AHU-2 PLAN VIEW
SCALE: 3/4"=1'-0"



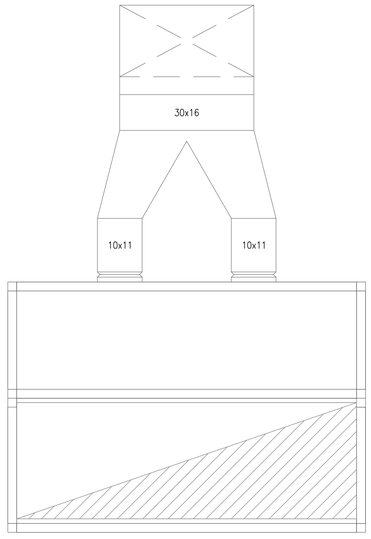
2 AHU-3 PLAN VIEW
SCALE: 3/4"=1'-0"

PLAN NOTES:

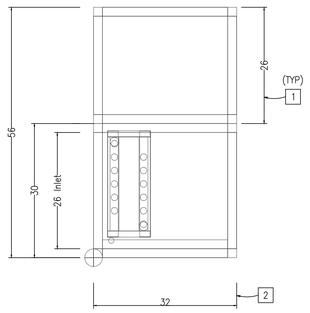
1. MECHANICAL SPACING IS LIMITED IN ROOM EQUIPMENT IS LOCATED. PHYSICAL DIMENSIONS SHOULD BE SIMILAR.
2. MAX SECTION SIZE SHALL FIT THROUGH 3' DOOR TO ALLOW FOR UNIT TO BE BROUGHT INTO MECHANICAL ROOM.
3. RE:MP102A SHEET FOR UNIT HANDING PIPING CONNECTION.



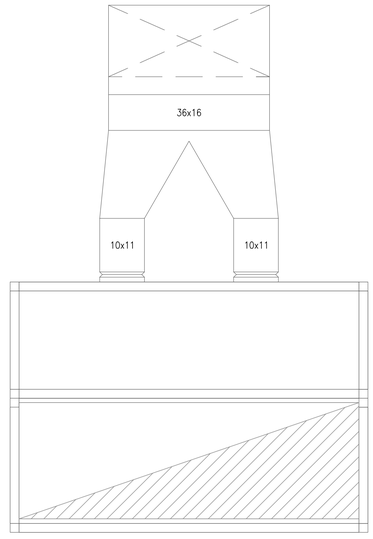
3 AHU-2 ELEVATION VIEW
SCALE: 3/4"=1'-0"



4 AHU-2 DUCTWORK DETAIL
SCALE: 3/4"=1'-0"



5 AHU-3 ELEVATION VIEW
SCALE: 3/4"=1'-0"



6 AHU-3 DUCTWORK DETAIL
SCALE: 3/4"=1'-0"

STATE OF MISSOURI
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CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

MECHANICAL AHU DETAILS

SHEET NUMBER:

M512

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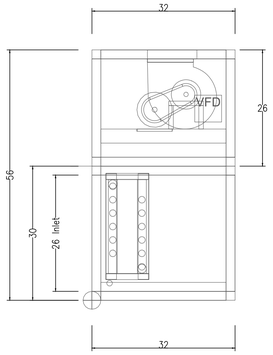
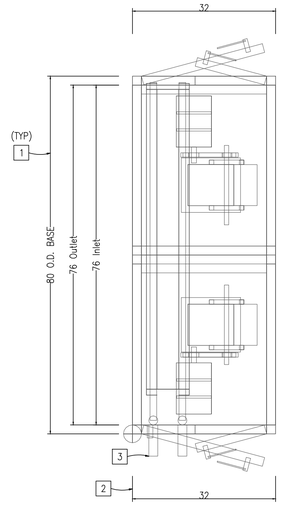
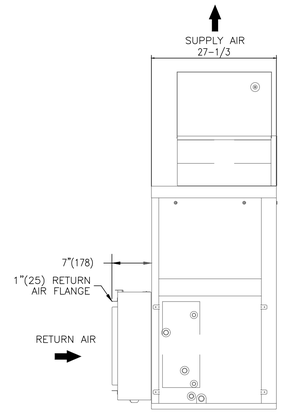
MARCH 21, 2023



1 AHU-5 THRU 10 ELEVATION VIEW
SCALE: 3/4"=1'-0"



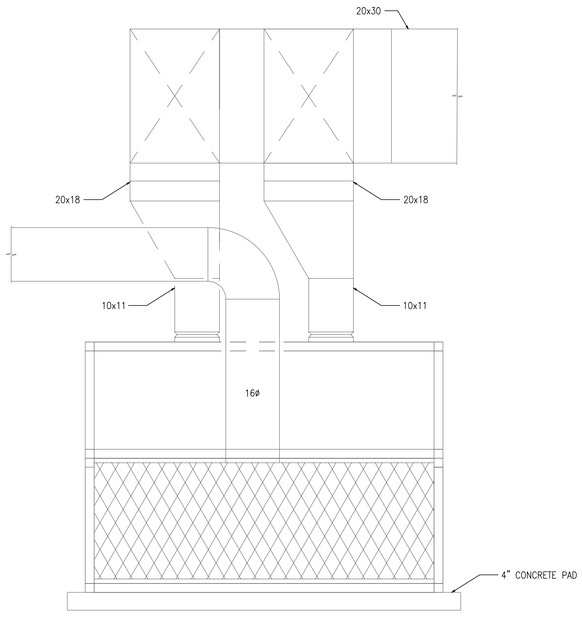
2 AHU-5 THRU 10 PLAN VIEW
SCALE: 3/4"=1'-0"



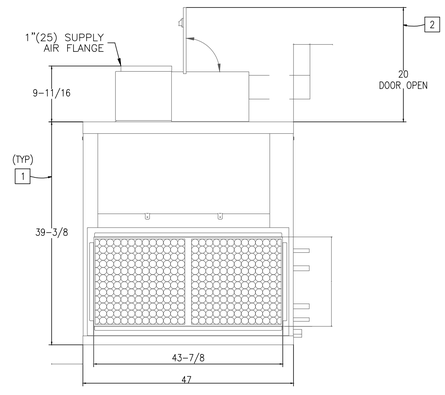
3 AHU-13 ELEVATION VIEW
SCALE: 3/4"=1'-0"

PLAN NOTES:

1. MECHANICAL SPACING IS LIMITED IN ROOM EQUIPMENT IS LOCATED. PHYSICAL DIMENSIONS SHOULD BE SIMILAR.
2. DIMENSION SHOWN IS FOR EQUIPMENT CLEARANCE.
3. RE:MP102A SHEET FOR UNIT HANDING PIPING CONNECTION.



4 AHU-5 THRU 10 DUCTWORK DETAIL
SCALE: 3/4"=1'-0"



5 AHU-13 FRONT VIEW
SCALE: 3/4"=1'-0"

STATE OF MISSOURI
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CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

MECHANICAL AHU DETAILS

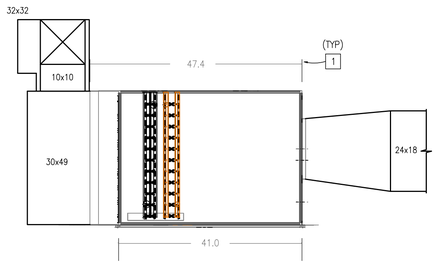
SHEET NUMBER:

M513

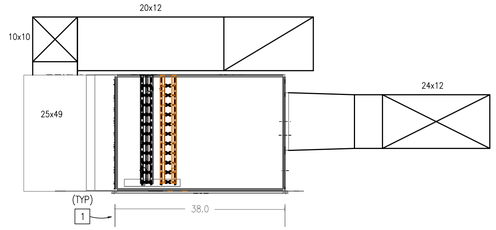
57 OF 111 SHEETS
MARCH 21, 2023

PLAN NOTES:

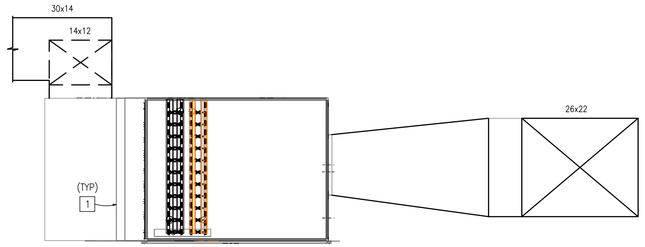
1. MECHANICAL SPACING IS LIMITED IN ROOM EQUIPMENT IS LOCATED. PHYSICAL DIMENSIONS SHOULD BE SIMILAR.
2. DIMENSION SHOWN IS FOR EQUIPMENT CLEARANCE.



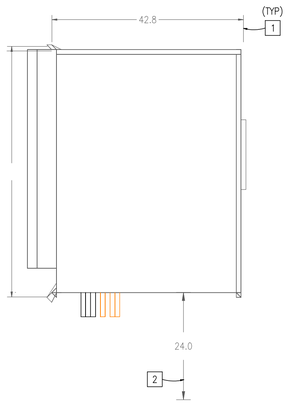
1 AHU-11 ELEVATION VIEW
SCALE: 3/4"=1'-0"



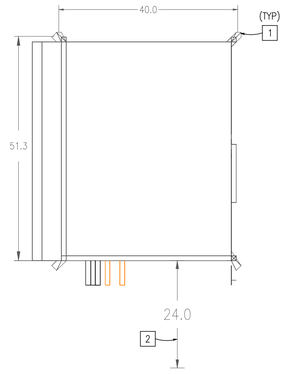
2 AHU-12 ELEVATION VIEW
SCALE: 3/4"=1'-0"



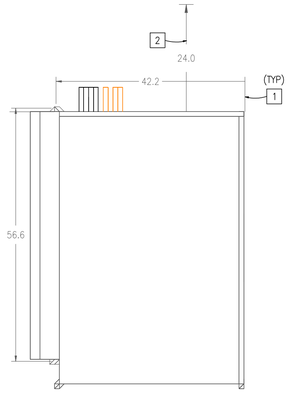
3 AHU-14 ELEVATION VIEW
SCALE: 3/4"=1'-0"



4 AHU-11 PLAN VIEW
SCALE: 3/4"=1'-0"



5 AHU-12 PLAN VIEW
SCALE: 3/4"=1'-0"



6 AHU-14 PLAN VIEW
SCALE: 3/4"=1'-0"

STATE OF MISSOURI
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SHEET TITLE:

MECHANICAL
AHU DETAILS

SHEET NUMBER:

M514

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MARCH 21, 2023

AIR SEPERATOR SCHEDULE

TAG NO.	MANUFACTURER	MODEL NO.	CAPACITY (GPM)	PIPE CONNECTION SIZE (IN.)	TANK CONNECTION (IN.)	NOTES
AS-01	BELL & GOSSETT	RL-6F	530	6	1-1/2"	1
AS-02	BELL & GOSSETT	RL-6F	530	6	1-1/2"	1

NOTES:
1) AIR SEPARATOR SHALL BE ASME RATED.
* OR APPROVED EQUAL

GLYCOL FEEDER SCHEDULE

TAG NO.	SERVICE	MANUFACTURER *	MODEL	TANK VOLUME (GAL)	NOTES
GF-01	CHW SYSTEM	WESSELS	GMPD-25050	50	1

NOTES:
1) PROVIDE WITH LOW LEVEL LIGHT, PUMP ON LIGHT, FLOAT SWITCH FOR LOW LEVEL PUMP SHUTOFF AND ALARM, HOA PUMP SELECTOR SWITCH, AND DRY CONTACT FOR REMOTE LOW LEVEL INDICATION.
* OR APPROVED EQUAL

CHEMICAL FEEDER SCHEDULE

TAG NO.	SERVICE	MANUFACTURER *	MODEL	TANK VOLUME (GAL)	NOTES
CF-01	CHW SYSTEM	NEPTUNE	NTF-5	5	1
CF-02	HHW SYSTEM	NEPTUNE	NTF-5	5	1

NOTES:
1) PROVIDE CHEMICAL FEEDER WITH FILTER.
* OR APPROVED EQUAL.

EXPANSION TANK SCHEDULE

TAG NO.	MANUFACTURER	MODEL NO.	TANK VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	MAX WORKING PRESSURE (PSI)	% GLYCOL (PROPYLENE)	FILL PRESSURE (PSI)	DIMENSIONS (INCHES (HxW))	WEIGHT (LB)	FOULING FACTOR	NOTES
ET-01	BELL & GOSSET	D-40V	21.7	11.3	100	25	12	16x30	271	0	1
ET-02	BELL & GOSSET	D-40V	21.7	11.3	100	0	12	16x30	271	0	1

NOTES:
1) EXPANSION TANK SHALL BE ASME RATED.
* OR APPROVED EQUAL

AIR HANDLING UNIT SCHEDULE

NEW TAG NO.	DEMO TAG NO.	AREA SERVED	MANUFACTURER	MODEL	SUPPLY FAN					COIL DATA															ELECTRIC			NOTES
										HOT WATER HEATING DATA								CHILLED WATER COOLING DATA										
					FAN TYPE	COOLING SUPPLY AIR (cfm)	HEATING SUPPLY AIR (cfm)	MINIMUM OUTDOOR AIR (cfm)	ESP	PROPYLENE GLYCOL (%)	# OF COILS	TOTAL COIL LOAD (MBH)	EAT (DB °F)	LAT (DB °F)	EWT (°F)	LWT (°F)	WATER FLOW (gpm)	PROPYLENE GLYCOL (%)	# OF COILS	SENSIBLE COIL LOAD (MBH)	TOTAL COIL LOAD (MBH)	EAT (DB °F)	LAT (DB °F)	EWT (°F)	LWT (°F)	WATER FLOW (gpm)	VOLTAGE/ PHASE	MCA	MOP	
AHU-1	AHU K-P	MULTIPLE	DAIKIN	CAH021GDGM	DIRECT DRIVE AIRFOIL	9,000	6300	1,500	1.5	0	2	139.9	55.0	75.3	130	110	13.8	25	2	254.8	353.2	79.2	53.3	42	54	61.2	460/3	21.9	40	1-8,10,11,15,16
AHU-2	AHU-A	KITCHEN	DAIKIN	CAC010GBAM	2X FORWARD CURVE	4,500	3500	345	1.2	0	1	–	–	–	–	–	–	25	1	104.4	182.0	75.6	54.4	42	54	30.4	460/3	9.5	20	1-7,9,12
AHU-3	AHU-B	RESIDENT DINING	DAIKIN	CAH004GDAM	2X FORWARD CURVE	4,000	3100	1,500	1.4	0	1	–	–	–	–	–	–	25	1	133.8	190.3	84.4	53.8	42	54	32.1	460/3	9.5	20	1-7,9,12
AHU-4	AHU C-J	MULTIPLE	DAIKIN	CAC010GBAM	DIRECT DRIVE AIRFOIL	12,000	8400	2,350	1.5	0	2	264.0	55.0	75.1	130	110	26.2	25	2	367.7	526.6	80.0	52.0	42	54	88.9	460/3	22.5	40	1-8,10,11,15,16
AHU-5	AHU-Q	HOUSING	DAIKIN	CAC010GBAM	2X FORWARD CURVE	4,000	3100	720	1.6	0	1	–	–	–	–	–	–	25	1	106.2	157.6	79.5	55.2	42	54	27.5	460/3	9.5	20	1-7,9,12
AHU-6	AHU-R	HOUSING	DAIKIN	CAC010GBAM	2X FORWARD CURVE	4,000	3100	720	1.6	0	1	–	–	–	–	–	–	25	1	106.2	157.6	79.5	55.2	42	54	27.5	460/3	9.5	20	1-7,9,12
AHU-7	AHU-S	HOUSING	DAIKIN	CAC010GBAM	2X FORWARD CURVE	4,000	3100	720	1.6	0	1	–	–	–	–	–	–	25	1	106.2	157.6	79.5	55.2	42	54	27.5	460/3	9.5	20	1-7,9,12
AHU-8	AHU-T	HOUSING	DAIKIN	CAC010GBAM	2X FORWARD CURVE	4,000	3100	720	1.6	0	1	–	–	–	–	–	–	25	1	106.2	157.6	79.5	55.2	42	54	27.5	460/3	9.5	20	1-7,9,12
AHU-9	AHU-U	HOUSING	DAIKIN	CAC010GBAM	2X FORWARD CURVE	4,000	3100	720	1.6	0	1	–	–	–	–	–	–	25	1	106.2	157.6	79.5	55.2	42	54	27.5	460/3	9.5	20	1-7,9,12
AHU-10	AHU-V	HOUSING	DAIKIN	CAC010GBAM	2X FORWARD CURVE	4,000	3100	720	1.6	0	1	–	–	–	–	–	–	25	1	106.2	157.6	79.5	55.2	42	54	27.5	460/3	9.5	20	1-7,9,12
AHU-11	AHU-15	STORAGE AREA	DAIKIN	BCHD0401	DIRECT DRIVE AIRFOIL	3,500	1475	480	1.5	0	1	137.8	59.9	95.9	130	110	13.8	25	1	78.4	93.7	81.0	60.5	42	54	16.5	460/3	7.7	15	2-7,9,12-14,16
AHU-12	AHU-16	ADMIN/OFFICE	DAIKIN	BCHD0301	DIRECT DRIVE AIRFOIL	1,975	1400	360	1.5	0	1	91.5	56.0	98.4	130	110	9.2	25	1	62.9	93.5	83.2	54.1	42	54	17	460/3	3	15	2-7,9,12-14,16
AHU-13	AHU-17	TOILET/SHOWERS	IEC	VDY16	DIRECT DRIVE AIRFOIL	1,750	1235	330	1.5	0	1	67.7	55.6	90.5	130	110	6.8	25	1	44.0	63.7	83.8	60.4	42	54	11	208/3	4.6	15	2-7,9,14,16
AHU-14	AHU-18	SLEEPING DORM	DAIKIN	BCHD0501	DIRECT DRIVE AIRFOIL	5,000	3700	920	1.5	0	1	206.4	56.6	94.4	130	110	20.7	25	1	130.2	169.4	79.6	55.8	42	54	29.7	460/3	11.6	20	2-7,9,12-14,16

NOTES:
1) PROVIDE UNIT WITH 2" STATIC DEFLECTION SPRING ISOLATORS UNDER BASE FRAME. COORDINATE QUANTITY AND LOCATION WITH MANUFACTURER.
2) NEW UNIT IS SIMILAR TO EXISTING UNIT. MINIMUM OUTDOOR AIR CFM IS EQUAL TO REPLACED VALUE.
3) PROVIDE UNIT WITH 6" BASE FRAME AND HINGED ACCESS DOORS.
4) ALL CABINET WALLS AND ACCESS DOORS SHALL BE INSULATED DOUBLE WALL CONSTRUCTION WITH A THERMAL BREAK.
5) PROVIDE UNIT WITH STAINLESS STEEL DRAIN PANS SLOPED TO A SINGLE DRAIN CONNECTION.
6) PROVIDE UNIT WITH TERMINAL STRIPS FOR BAS POINT COMMUNICATION WITH CONTROLS CONTRACTOR. BAS SYSTEM TO CONTROL FAN, ETC.
7) PROVIDE UNIT WITH LEFT/RIGHT HAND COIL CONNECTIONS AS SHOWN ON PLANS.
8) PROVIDE SUPPLY FAN VFD BY MANUFACTURER SHIPPED LOOSE FOR FIELD INSTALL.
9) VFD TO BE PROVIDED MY MECHANICAL AND INSTALLED BY ELECTRICAL ON NEARBY WALL WITH REQUIRED CLEARANCES.
10) VFD TO BE FACTORY INSTALLED.
11) MAXIMUM SHIPPING SPLIT SHALL BE 50" LONG.
12) FAN CLASS LIMIT SHOULD BE MORE THAN 20% RPM ABOVE SELECTION AT OPERATING CONDITIONS WITH FILTER LOADING AS SCHEDULED.
13) UNIT TO BE SUSPENDED FROM CEILING.
14) UNIT SIZE AND CONFIGURATION ARE CIRTICAL.
15) PROVIDE UNIT WITH ULTRASEAL LOW LEAK DAMPERS.
16) PROVIDE UNIT WITH MERV8 FILTERS.

MAKEUP AIR UNIT SCHEDULE

TAG NO.	MANUFACTURER	MODEL	CONFIG	SUPPLY AIR FAN DATA						HEAT GAS COIL				FAN DATA				ELECTRIC			CABINET SIZE (IN)			WEIGHT (LBS)	NOTES
				CFM	FAN TYPE	ESP IN WC	RPM	MOTOR DATA		GAS TYPE	CAPACITY		GAS PRESSURE	NUMBER OF FANS	TYPE OF FAN	SIZE (in.)	DRIVE TYPE	VOLTAGE/ PHASE	MCA	MOP	OUTSIDE				
								HP	VOLTAGE/ PHASE		INPUT	OUTPUT	MIN (in. wg) / MAX (psi)								W	H	L		
MAU-01	GREENHECK	DGX-112-H22	HORIZ	3150	PLENUM	1	1093	2	460/3	NG	258.9	238.1	9 / 0.5	1	FORWARD CURVE	12	BELT	460/3	10.6	15	44	45	174	6580	1-8
MAU-02	GREENHECK	DGX-112-H22	HORIZ	3150	PLENUM	1	1093	2	460/3	NG	258.9	238.1	9 / 0.5	1	FORWARD CURVE	12	BELT	460/3	10.6	15	44	45	174	6580	1-8

NOTES:
1) PROVIDE UNIT WITH INSULATED DOUBLE WALL CONSTRUCTION
2) PROVIDE INTAKE HOOD WITH OPTIONAL 2-INCH ALUMINUM MESH FILTERS
3) PROVIDE UNIT WITH 2" MERV 8 FILTERS.
4) PROVIDE UNIT WITH OPTIONAL LOW-LEAKAGE MOTORIZED ISOLATION DAMPER.
5) PROVIDE UNIT WITH LOSS-OF-PHASE/UNDER VOLTAGE RELAY WITH AUTOMATIC RESET.
6) PROVIDE UNIT WITH (1) SET OF SPARE BELTS.
7) PROVIDE UNIT WITH RECEPTACLE TO BE FIELD INSTALLED BY CONTRACTOR.
8) PROVIDE UNIT WITH FACTORY INSTALLED DISCONNECT SWITCH.

DX SPLIT DUCTLESS AIR CONDITIONING SYSTEM SCHEDULE

TAG #	MANUFACTURER	MODEL #	TYPE	AREA SERVED	INDOOR EVAPORATOR SECTION								OUTDOOR CONDENSING UNIT							ELECTRICAL DATA				NOTES
					AIRFLOW (CFM)	CAPACITY (MBH TOTAL)	COOLING EAT (F)		HEATING CAPACITY (MBH TOTAL)	HEATING EAT (F)		WEIGHT	TAG	MODEL	REFRIG.	ENTERING TEMP RATED/MAX(F)	SEER	ENTERING TEMP RATED/MIN(F)	WEIGHT (LBS)	HEATING MBH	VOLTAGE/ PHASE	MCA	OCP	
							DB	WB		DB	WB													
AC-1	DAIKIN	FTK24NMVJU	WALL MOUNTED	TELEPHONE 138	713	21.2/15.7	80	67.0	NA	NA	NA	27.0	ACC-1	RK24NMVJU	R-410A	95/115	18.0	50/-4	108.0	N/A	208/1	18.3	20	1-6
AC-2	DAIKIN	FTK24NMVJU	WALL MOUNTED	ELECTRICAL CLOSET C-108	713	21.2/15.7	80	67.0	NA	NA	NA	27.0	ACC-1	RK24NMVJU	R-410A	95/115	18.0	50/-4	108.0	N/A	208/1	18.3	20	1-6

NOTES:
1) PROVIDE UNIT WITH CONDENSATE PUMP.
2) POWER FOR INDOOR EVAPORATOR UNIT SHALL BE PROVIDED FROM THE OUTDOOR CONDENSING UNIT. PROVIDE ALL NECESSARY CONDUIT, WIRING, DISCONNECT MEANS, ETC BETWEEN INDOOR AND OUTDOOR UNIT.
3) PROVIDE INDOOR UNIT WITH FACTORY MOUNTING BRACKETS.
4) PROVIDE UNIT WITH REMOTE WIRED THERMOSTAT.
5) PROVIDE INDOOR UNIT WITH OVERFLOW FLOW SWITCH.
6) PROVIDE REFRIGERANT LINE SETS FOR UNIT PER MANUFACTURER'S RECOMMENDATIONS.

* OR PRIOR APPROVED EQUAL

BOILER SCHEDULE

TAG NO.	MANUFACTURER	MODEL NO.	TYPE	GALLON CAPACITY	DESIGN GPM	MAX GPM	INPUT MBH (MIN/MAX)	OUTPUT MBH (MIN/MAX)	ELECTRICAL REQUIREMENTS			NOTES
									VOLT/PHASE	MOP	FLA	
B-1	AERCO	BMK-2000-DF	NAT. GAS / PROPANE	40	218	350	100 / 2,000	86 / 1,860	120/1	20	16	1-6
B-2	AERCO	BMK-2000-DF	NAT. GAS / PROPANE	40	218	350	100 / 2,000	86 / 1,860	120/1	20	16	1-6

NOTES:
1) PROVIDE BOILER WITH ISOLATION VALVE CONTROLLED BY BOILER.
2) PROVIDE FACTORY STARTUP.
3) PROVIDE WITH CONDENSATE NEUTRALIZATION KIT.
4) PROVIDE UNIT WITH AERCO ON BOARD BOILER SEQUENCING TECHNOLOGY (BST) AND MODBUS INTERFACE. BOILER SEQUENCE SHALL PERFORM ALL STAGING AND VALVE OPERATION CONTROL.
5) BOILER TO HAVE 20:1 TURNDOWN RATIO.
6) PROVIDE BOILERS WITH FIELD INSTALLED MAIN HHWS-T TEMPERATURE SENSOR.
* OR APPROVED EQUAL

BLOWER COIL SCHEDULE

TAG #	MANUFACTURER	MODEL #	TYPE	AREA SERVED	COOLING COIL							ELECTRICAL DATA				NOTES
					AIRFLOW (CFM)	PROPYLENE GLYCOL (%)	CAPACITY (MBH T/S)	EAT (F) DB/WB	GPM	PIPE SIZE (IN)	WATER DP (FTHD)	HEATING KW	VOLTAGE/ PHASE	MCA	OCP	
BC-1	ABOVEAIR	SPC-018-1-E10-00-TB	HORIZONTAL CEILING MOUNTED	CENTRAL CONTROL 102	750	25	15.4/14.9	72/60	4.5	5/8	1.0	4.7	208/1	32.9	35	1-5

NOTES:
1) PROVIDE INDOOR UNIT WITH FACTORY MOUNTING BRACKETS.
2) PROVIDE UNIT WITH REMOTE WIRED THERMOSTAT.
3) PROVIDE INDOOR UNIT WITH OVERFLOW FLOW SWITCH.
4) UNIT SHALL HAVE FACTORY INSTALLED 2-WAY VALVE.
5) PROVIDE UNIT WITH MAIN POWER ELECTRICAL DISCONNECT.

* OR PRIOR APPROVED EQUAL

PUMP SCHEDULE

TAG NO.	MANUFACTURER	MODEL NO.	PUMP DATA					MOTOR DATA				NOTES
			TYPE	SUCTION SIZE (in.)	DISCHARGE SIZE (in.)	HEAD LOSS (ft.)	WATER FLOW (gpm)	RPM	H.P.	VOLTS	PHASE	
CHWP-01	BELL & GOSSETT	E1510-2P5AC-SS-254T-S	END SUCTION	3	2.5	105	440	3600	20	460	3	1-5
HHWP-01	BELL & GOSSETT	E1510-2P5AC-SS-215T-S	END SUCTION	3	2.5	100	350	3600	15	460	3	2-5
HHWP-02	BELL & GOSSETT	E1510-2P5AC-SS-215T-S	END SUCTION	3	2.5	100	350	3600	15	460	3	2-5

NOTES:
1) HEAD (FT) INDICATED INCLUDES CORRECTION FACTOR FOR 25% PROPYLENE GLYCOL SOLUTION.
2) PROVIDE PETE'S PLUG ON PUMP SUCTION AND DISCHARGE AND EXTEND THROUGH HOUSING.
3) CHILLED WATER AND HEATING HOT WATER PUMP SHALL BE VFD OPERATED. MOTORS SHALL BE PREMIUM EFFICIENT INVERTER GRADE.
4) PROVIDE PUMP WITH SUCTION DIFFUSER AND REMOVABLE SCREEN.
5) PROVIDE PUMP WITH FLEX CONNECTIONS ON SUCTION AND DISCHARGE PIPING.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER
OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

MECHANICAL
SCHEDULES

SHEET NUMBER:

M601

59 OF 111 SHEETS
MARCH 21, 2023

AIR COOLED WATER CHILLER SCHEDULE

TAG NO.	MANUFACTURER *	MODEL NO.	CAPACITY (TONS) @ DESIGN FLOW	EVAPORATOR DATA										CONDENSER DATA			COMPRESSOR DATA			EFFICIENCY		CABINET SIZE (IN)				ELECTRICAL				NOTES
				PASSES	MAX GPM	DESIGN GPM	MIN GPM	PRESSURE DROP @ DESIGN GPM	MIN. OPERATING LOAD (TONS)	ENTERING TEMP. °F	LEAVING TEMP. °F	FOUL FACTOR	FLUID P.G. %	AMBIENT °F	ELEVATION (FT)	COIL FPI	REFRIG. TYPE	COMPRESSOR TYPE	# OF COMP/ # OF CIRCUITS	EER	IPLV	SHIPPING/ OPERATING WEIGHT (LBS)	W	H	L	VOLTAGE/ PHASE	MIN. SHORT CIRCUIT RATING (A RMS SYM.)	MCA	MOCP	
CH-1	DAIKIN	AWV016A	180	1	625	440	156	13.4	25	54	42	0.0001	25	105	900	MICROCHANNEL	R134a	SCREW	2/1	8.4	20.7	16460/17021	88	100	334	460/3	65 KA	423	600	1-17

NOTES:

1. PROVIDE UNIT WITH (1) LAYER OF 3/4" INSULATION.
2. PROVIDE UNIT WITH GROOVED, LEFT HANDED WATER CONNECTION.
3. PROVIDE UNIT WITH UNCOATED MICROCHANNEL CONDENSER COILS.
4. PROVIDE UNIT WITH CONDENSER COIL LOUVERS.
5. PROVIDE UNIT WITH VARIABLE SPEED SCREW COMPRESSORS WITH DISCHARGE MUFFLERS.
6. PROVIDE UNIT WITH BACNET MS/TP.
7. PROVIDE UNIT WITH DISPLAY ON CHILLER CONTROLLER.
8. PROVIDE UNIT CAPACITY RATED FOR 105 DEG F.
9. PROVIDE UNIT WITH (1) POINT POWER CONNECTION. PROVIDE UNIT WITH SINGLE POINT 460/3PH ELECTRICAL CONNECTION AND EQUIPMENT SHORT CIRCUIT RATING PER MIN. VALUES ABOVE.
10. PROVIDE UNIT WITH GROUND FAULT PROTECTION.
11. PROVIDE 115V CONVENIENCE OUTLET.
12. PROVIDE UNIT WITH FACTORY MOUNTED EVAPORATOR THERMAL DISPERSION FLOW INDICATOR.
13. PROVIDE UNIT WITH (1) YEAR WHOLE UNIT WARRANTY.
14. PROVIDE COMPRESSORS WITH (4) YEAR EXTENDED WARRANTY.
15. SOUND PRESSURE LEVEL AT 30 FT OF UNIT RUNNING AT 100% LOAD SHALL NOT BE ABOVE 72 dBA OVERALL.
16. UNIT WILL HAVE FACTORY START UP.
17. PROVIDE 8 HOURS OF OWNER TRAINING.

*DESIGN INCLUDES THE COOLING EQUIPMENT EFFICIENCY PERFORMANCE EXCEPTION FOR ECONOMIZERS PER 2018 IECC TABLE C403.5(2) AND ASSOCIATED WATER CHILLING PACKAGES EFFICIENCY REQUIREMENTS TABLE C403.3.2(7). THIS WOULD ALLOW FOR A MINIMUM EER OF 11.6 OR IPLV OF 18.1; HOWEVER, OWNER'S DESIGN STANDARDS REQUIRE THE USE OF 90.1 LATEST VERSION OR ADOPTED ENERGY CODE (WHICHEVER IS MORE STRINGENT).

HEATING HOT WATER COIL SCHEDULE

TAG NO.	MANUFACTURER *	MODEL	DUCT DIM.		CFM (MAX)	FACE VEL (FPM)	MAX AIR PD (IN. W.G.)	EAT (°F)	LAT (°F)	MBH	EWT (°F)	LWT (°F)	GPM	COIL ROWS	PIPE SIZE (IN)	WATER PD (FD HD)	NOTES
			HEIGHT (IN)	WIDTH (IN)													
AHU-2-HC-1	DAIKIN	5WQ0803B	24	46	3500	666.7	0.5	63.0	95.8	126	130.0	109.1	12.0	3	1-1/4	6.2	1-3
AHU-3-HC-1	DAIKIN	5WQ1103B	27	46	3100	516.7	0.3	43.8	95.7	176	130.0	109.5	17.2	3	1-1/2	9.3	1-3
AHU-5-HC-1	DAIKIN	5WS1204B	42	35	3100	477.0	0.4	57.4	99.6	143	130.0	111.2	15.2	4	1-1/2	0.1	1-3
AHU-6-HC-1	DAIKIN	5WS1204B	42	35	3100	477.0	0.4	57.4	99.6	143	130.0	111.2	15.2	4	1-1/2	0.1	1-3
AHU-7-HC-1	DAIKIN	5WS1204B	42	35	3100	477.0	0.4	57.4	99.6	143	130.0	111.2	15.2	4	1-1/2	0.1	1-3
AHU-8-HC-1	DAIKIN	5WS1204B	42	35	3100	477.0	0.4	57.4	99.6	143	130.0	111.2	15.2	4	1-1/2	0.1	1-3
AHU-9-HC-1	DAIKIN	5WS1204B	42	35	3100	477.0	0.4	57.4	99.6	143	130.0	111.2	15.2	4	1-1/2	0.1	1-3
AHU-10-HC-1	DAIKIN	5WS1204B	42	35	3100	477.0	0.4	57.4	99.6	143	130.0	111.2	15.2	4	1-1/2	0.1	1-3

NOTES

1) ALL COILS SHALL BE CONSTRUCTED OF COPPER TUBES, ALUMINUM FINS, COPPER HEADERS, AND COPPER CONNECTIONS (NO CARBON STEEL).
2) CONTRACTOR SHALL ORDER LEFT/RIGHT HANDED COILS AS NECESSARY TO ALLOW FOR ALL REQUIRED CLEARANCES.
3) PIPE SHOWN SHALL BE THE COILS ASSOCIATED BRANCH PIPING SIZE. ALL BALANCE VALVES, STRAINERS, ISOLATION VALVES, ETC. SHALL BE THIS SIZE.

VAV BOX SCHEDULE

TAG #	AHU TAG	ROOM	MODEL	SIZE		CFM			STATIC PRESSURE			NC LEVELS		HOT WATER HEAT COIL											NOTES
				UNIT	OUTLET	MAX.	MIN	DCV MIN	INLET	DOWN	MIN	RAD	DIS	CFM	MBH	EAT	EWT	LAT	APD	GPM	LWT	PIPE SIZE (in)	WPD	ROWS	FPI	
VAV-1-1	AHU 1	CHIEF OF SECURITY	DESV	14	20x17.5	1625	1140	–	1	0.25	.26	20	19	450	18.0	60	130	97	0.24	1.8	110.1	3/8	0.22	2-RH	12	1-11
VAV-1-2	AHU 1	CELLS	DESV	40	38x18	2380	450	–	1	0.25	.17	30	24	1670	63.5	60	130	95	0.16	9.8	116.8	1-1/4	2.02	2-RH	12	1-11
VAV-1-3	AHU 1	STAFF DINING	DESV	14	20x17.5	930	230	–	1	0.25	.11	16	17	660	25.1	60	130	95	0.10	2.8	111.8	3/4	0.42	2-RH	12	1-11
VAV-1-4	AHU 1	VISITOR MULTI PURPOSE	DESV	10	14x12.5	980	230	130	1	0.25	.01	25	28	–	–	–	–	–	–	–	–	–	–	–	–	1-12
VAV-1-5	AHU 1	PROGRAM OFFICES	DESV	12	16x15	1380	325	–	1	0.25	.01	25	27	–	–	–	–	–	–	–	–	–	–	–	–	1-11
VAV-1-6	AHU 1	LOBBY/SALLYPORTS	DESV	14	20x17.5	1075	230	–	1	0.25	.13	17	18	755	28.7	60	130	95	0.12	3.7	114.4	3/4	0.62	2-RH	12	1-11
VAV-4-1	AHU 4	PROGRAM OFFICES	DESV	10	14x12.5	1000	230	–	1	0.25	.01	25	28	–	–	–	–	–	–	–	–	–	–	–	–	1-11
VAV-4-2	AHU 4	GENERAL WAREHOUSE	DESV	14	20x17.5	1115	230	–	1	0.25	.14	17	18	785	29.8	60	130	95	0.13	4.1	115.3	1	0.74	2-RH	12	1-11
VAV-4-3	AHU 4	MAINTENANCE OFFICE	DESV	16	24x18	1635	450	–	1	0.25	.25	14	15	1145	43.5	60	130	95	0.24	3.8	106.8	1	0.25	3-RH	10	1-11
VAV-4-4	AHU 4	MULTI PURPOSE ROOM	DESV	16	24x18	1100	230	100	1	0.25	.09	11	11	760	28.9	60	130	95	0.08	5.7	119.7	1	0.55	2-RH	10	1-12
VAV-4-5	AHU 4	SOUTH CLASSROOMS	DESV	40	38x18	2000	450	–	1	0.25	.13	27	23	1400	60.8	60	130	95	0.12	9.0	116.3	1-1/4	1.75	2-RH	12	1-11
VAV-4-6	AHU 4	NORTH CLASSROOMS	DESV	14	20x17.5	2205	450	–	1	0.25	.04	25	24	–	–	–	–	–	–	–	–	–	–	–	–	1-11
VAV-4-7	AHU 4	SUPER INTENDANT	DESV	16	24x18	1650	450	–	1	0.25	.19	15	15	1070	40.7	60	130	95	0.18	8.0	119.7	1-1/4	1.04	2-RH	12	1-11
VAV-4-8	AHU 4	CONFERENCE/CLERICAL	DESV	16	24x18	1840	450	–	1	0.25	.23	15	17	1080	41.0	60	130	95	0.22	8.2	119.9	1-1/4	1.10	2-RH	12	1-11

NOTES:

1) SELECTIONS ARE BASED ON TITUS AS MANUFACTURER.
2) ALL PERFORMANCE BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASHRAE 130-2008 AND AHRI 880-2011.
3) ALL NC LEVELS DETERMINED USING AHRI 885-2008 APPENDIX E.
4) ALL AIRFLOW, PRESSURE LOSSES AND HEATING PERFORMANCE VALUES HAVE BEEN CORRECTED FOR ALTITUDE.
5) UNITS OF MEASURE: DIMENSIONS (IN), AIRFLOW (CFM), WATER FLOW (GPM), AIR PRESSURE (IN WG), WATER HEAD LOSSES (FT) AND TEMPERATURES (DEGF).
6) WATER PRESSURE DROP (WPD) UNITS IS IN FT. WATER.
7) ALL VAV BOXES SHALL BE PRESSURE INDEPENDENT WITH STAND-ALONE DDC CONTROLLERS WITH ELECTRIC ACTUATORS PROVIDED AND INSTALLED BY THE CONTROLS CONTRACTOR. PROVIDE FUSING, TRANSFORMER, TERMINAL BLOCKS, WIRING, TUBING, ETC. FOR A COMPLETE SYSTEM. INSTALL PER CONTROL CONTRACTOR'S RECOMMENDATIONS. ALL DEVICES INSTALLED IN COMMON ENCLOSURE WITH REMOVEABLE COVER. CONTROL TRANSFORMER VOLTAGES SHALL BE COORDINATED WITH CONTROLS CONTRACTOR.
8) CONTRACTOR SHALL ORDER LEFT/RIGHT HANDED BOXES AS NECESSARY TO ALLOW FOR ALL REQUIRED CLEARANCES.
9) UNITS SHALL HAVE A MAXIMUM NC VALUE OF 35.
10) PIPE SIZE SHOWN SHALL BE THE COILS ASSOCIATED BRANCH PIPING SIZE. ALL BALANCE VALVES, ISOLATION VALVES, ETC. SHALL BE THIS SIZE. CONTROL VALVES SHALL BE SIZED BASED ON Cv SHOWN. PROVIDE TRANSITIONS FOR CONTROL VALVES AND COIL CONNECTIONS AS NECESSARY.
11) PROVIDE WITH FIBER FREE INSULATION 1" THICK.
12) PROVIDE UNIT WITH CO2 CONTROL. MINIMUM CFM SHALL BE RESET BETWEEN VALUES SHOWN BASED ON INPUT FROM CO2 SENSOR.

* OR PRIOR APPROVED EQUAL

VARIABLE FREQUENCY DRIVE SCHEDULE

TAG NO.	MANUFACTURER *	MODEL	SERVES	QTY	HP	VOLTS	PHASE	HZ	ENCLOSURE RATING	NOTES
VFD-CHWP-1	ASEA BROWN BOVERI	ACH-580	CHWP-1	1	20	480	3	60	UL(NEMA) TYPE 12	1-10
VFD-HHWP-1	ASEA BROWN BOVERI	ACH-580	HHWP-1	1	15	480	3	60	UL(NEMA) TYPE 12	1-10
VFD-HHWP-2	ASEA BROWN BOVERI	ACH-580	HHWP-2	1	15	480	3	60	UL(NEMA) TYPE 12	1-10
VFD-AHU-1	ASEA BROWN BOVERI	ACH-580	AHU-1	1	15	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-2	ASEA BROWN BOVERI	ACH-580	AHU-2	2	3	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-3	ASEA BROWN BOVERI	ACH-580	AHU-3	2	3	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-4	ASEA BROWN BOVERI	ACH-580	AHU-4	1	15	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-5	ASEA BROWN BOVERI	ACH-580	AHU-5	2	3	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-6	ASEA BROWN BOVERI	ACH-580	AHU-6	2	3	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-7	ASEA BROWN BOVERI	ACH-580	AHU-7	2	3	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-8	ASEA BROWN BOVERI	ACH-580	AHU-8	2	3	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-9	ASEA BROWN BOVERI	ACH-580	AHU-9	2	3	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-10	ASEA BROWN BOVERI	ACH-580	AHU-10	2	3	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-11	ASEA BROWN BOVERI	ACH-580	AHU-11	1	5	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-12	ASEA BROWN BOVERI	ACH-580	AHU-12	1	1 1/2	480	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-13	ASEA BROWN BOVERI	ACH-580	AHU-13	1	1	208	3	60	UL(NEMA) TYPE 12	1-8
VFD-AHU-14	ASEA BROWN BOVERI	ACH-550	AHU-14	1	7 1/2	480	3	60	UL(NEMA) TYPE 12	1-8

NOTES:

1) PROVIDE WITH LOCAL DISCONNECT.
2) PROVIDE WITH CONTROLS INTERFACE BOARD FOR SINGLE TERMINATION BY CONTROLS CONTRACTOR FOR START/STOP, PROOF, SPEED OUTPUT, AND SPEED INPUT. COORDINATE WITH CONTROLS CONTRACTOR.
3) PROVIDE WITH HUMAN INTERFACE OPERATOR CONTROL PANEL.
4) PROVIDE WITH (2) PROGRAMMABLE ANALOG INPUTS, A ZERO (TWO) TO TEN VOLT, 250 kOHM SINGLE ENDED VOLTAGE REFERENCE, A ZERO (FOUR) TO TWENTY MILLI-AMP, 100 OHM, SINGLE ENDED CURRENT REFERENCE, AND A TEN VOLTS DEC, TEN MILLI-AMP POTENTIOMETER.
5) PROVIDE WITH TWO PROGRAMMABLE CURRENT OUTPUTS WITH A ZERO (FOUR) TO TWENTY MILLI-AMP SIGNAL.
6) PROVIDE WITH (6) PROGRAMMABLE DIGITAL INPUTS AT 24 VDC.
7) PROVIDE WITH THREE PROGRAMMABLE RELAY (FORM C) OUTPUTS WITH A SWITCHING CAPACITY OF 8A AT 24 VDC OR 250 VAC AND .4A AT 120 VDC WITH SILVER CADMIUM OXIDE CONTACT MATERIAL.
8) PROVIDE WITH THE FOLLOWING PROTECTIONS: SINGLE PHASE, OVERCURRENT, OVERVOLTAGE, UNDERVOLTAGE, OVERTEMPERATURE (+239deg F), AUXILIARY VOLTAGE (SHORT CIRCUIT PROTECTED), GROUND FAULT, SHORT CIRCUIT, MICROPROCESSOR FAULT, MOTOR STALL PROTECTION, MOTOR OVERTEMPERATURE PROTECTION, INPUT POWER LOSS OF PHASE, LOSS OF REFERENCE, 100,000 RMS SYMMETRICAL AMPS, INPUT LINE IMPEDANCE (5% EQUIVALENT INPUT IMPEDANCE WITH INTERNAL REACTORS).
9) DEFAULT PUMP SPEED SHALL BE SET TO 45HZ.
10) MINIMUM DRIVE SPEED SHALL BE SET DURING TAB TO ALLOW FOR MINIMUM FLOW THROUGH CHILLER/BOILER. TAB CONTRACTOR SHALL DOCUMENT/RECORD FINAL MIN SETTINGS.

* OR APPROVED EQUAL

AIR DEVICE SCHEDULE:

TAG NO.	MANUFACTURER*	MODEL	FACE SIZE		MATERIAL	FRAME TYPE	VOL. DAMPER	FINISH	THROW AT 100 FPM (MAX)	TOTAL PRESSURE (MAX)	NC (MAX)	NOTES
			LENGTH	WIDTH								
SG-1	TITUS	301RL	PER DRAWINGS		STEEL	SURFACE	N	WHITE	VARIES	VARIES	25	1-2

NOTES:

1) BORDER TYPE TO BE FOR SURFACE MOUNTING. PROVIDE ALL NECESSARY HARDWARE FOR A COMPLETE INSTALLATION.
2) PROVIDE WITH SINGLE DEFLECTION BLADES PARALLEL TO LENGTH OF GRILLE.

BUILDING NATURAL GAS EQUIPMENT LOAD

QUANTITY	EQUIPMENT	CFH	EQUIPMENT SUM
2	CONVECTION OVEN	110	220
2	FRYER	122	244
2	KETTLE	190	380
1	RANGE/OVEN	186	186
1	SKITTLE	100	100
2	MAKE-UP AIR UNIT	270	540
1	LOADING DOCK HEATER	500	175
2	DRYER	165	330
2	HOT WATER HEATER	1020	2040
	EXISTING BUILDING TOTAL		4215
2	**REPLACEMENT MAKE-UP AIR UNIT**	**260**	**520**
2	**BOILER**	**2000**	**4000**
	NEW BUILDING TOTAL		**8195**

NOTES

1) NEW EQUIPMENT SHOWN IN BOLD TEXT.
2) CONTRACTOR TO FIELD VERIFY EXACT LOADS

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
PROFESSIONAL ENGINEER

MEP ENGINEER:

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:

ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

MECHANICAL SCHEDULES

SHEET NUMBER:

M602

60 OF 111 SHEETS
MARCH 21, 2023

OUTDOOR AIR CALCULATIONS

UNIT TAG	ROOM NAME	OCCUPANCY CLASSIFICATION	AREA SQ FT	OCCUPANT DENSITY (#/1000 SQ. FT)	PEOPLE OUTDOOR AIRFLOW RATE (CFM/PERSON)	AREA OUTDOOR AIRFLOW RATE (CFM/SQ. FT)	ZONE DISTRIBUTION EFFECTIVENESS, Ez	CALCULATED OA CFM
VAV-1-1	217-Chief of Security	Office space	143	5	5	0.06	0.8	15
VAV-1-1	218-Classified	Office space	104	5	5	0.06	0.8	11
VAV-1-1	219-Assistant Chief	Office space	109	5	5	0.06	0.8	12
VAV-1-1	221-Work Stations	Office space	829	5	5	0.06	0.8	88
VAV-1-1	222-Staff Lounge	Break rooms (General)	282	50	5	0.06	0.8	52
VAV-1-1	223-Staff Restroom	Office space	255	5	5	0.06	0.8	27
VAV-1-1	224-Staff Restroom	Office space	255	5	5	0.06	0.8	27
VAV-1-2	173-Sallyport	Corridors	706	0	0	0.06	0.8	53
VAV-1-2	174-Sallyport	Corridors	120	0	0	0.06	0.8	9
VAV-1-2	176-Womens Cell	Cell	94	25	5	0.12	0.8	29
VAV-1-2	177-Womens Cell	Cell	94	25	5	0.12	0.8	29
VAV-1-2	178-Cell	Cell	94	25	5	0.12	0.8	29
VAV-1-2	179-Cell	Cell	94	25	5	0.12	0.8	29
VAV-1-2	180-Cell	Cell	94	25	5	0.12	0.8	29
VAV-1-2	181-Cell	Cell	94	25	5	0.12	0.8	29
VAV-1-2	182-Cell	Cell	94	25	5	0.12	0.8	29
VAV-1-2	183-Cell	Cell	94	25	5	0.12	0.8	29
VAV-1-2	184-Cell	Cell	94	25	5	0.12	0.8	29
VAV-1-2	185-Cell	Cell	94	25	5	0.12	0.8	29
VAV-1-2	187-Control	Office space	107	5	5	0.06	0.8	11
VAV-1-2	188-Staff Toilet	Office space	35	5	5	0.06	0.8	4
VAV-1-3	159-Staff Dining	Break rooms (General)	402	50	5	0.06	0.8	93
VAV-1-3	189-Sallyport	Corridors	158	0	0	0.06	0.8	12
VAV-1-3	190-Special Equipment	Occupiable storage rooms for dry materials	158	2	5	0.06	0.8	14
VAV-1-3	191-Prop Storage	Occupiable storage rooms for dry materials	114	2	5	0.06	0.8	10
VAV-1-3	192-Interview	Office space	129	5	5	0.06	0.8	14
VAV-1-3	193-Search	Office space	72	5	5	0.06	0.8	8
VAV-1-4	108-Visitor Multipurpose	Lobbies/prefunction	761	30	7.5	0.06	0.8	188
VAV-1-4	109-Toilet	Office space	41	5	5	0.06	0.8	4
VAV-1-4	110-Toilet	Office space	41	5	5	0.06	0.8	4
VAV-1-5	161-Program Office 1	Office space	108	5	5	0.06	0.8	11
VAV-1-5	162-Program Office 2	Office space	108	5	5	0.06	0.8	11
VAV-1-5	163-Program Office 3	Office space	110	5	5	0.06	0.8	12
VAV-1-5	164-Program Office 4	Office space	114	5	5	0.06	0.8	12
VAV-1-5	165-Program Office 5	Office space	110	5	5	0.06	0.8	12
VAV-1-5	166-Program Office 6	Office space	110	5	5	0.06	0.8	12
VAV-1-5	168-Waiting	Office space	205	5	5	0.06	0.8	22
VAV-1-5	170-Exam	Office space	122	5	5	0.06	0.8	13
VAV-1-5	171-Exam	Office space	123	5	5	0.06	0.8	13
VAV-1-5	172-Supplies	Occupiable storage rooms for dry materials	86	2	5	0.06	0.8	8
VAV-1-5	169-Exam	Office space	118	5	5	0.06	0.8	13
VAV-1-5	167-Corridor	Corridors	740	0	0	0.06	0.8	56
VAV-1-6	100-Lobby	Lobbies/prefunction	144	30	7.5	0.06	0.8	51
VAV-1-6	101-Sallyport	Corridors	373	0	0	0.06	0.8	28
VAV-1-6	105-Sallyport	Corridors	130	0	0	0.06	0.8	10
VAV-1-6	104-Lockers	Occupiable storage rooms for dry materials	56	2	5	0.06	0.8	5
VAV-1-6	106-Search	Office space	66	5	5	0.06	0.8	7
VAV-1-6	107-Sallyport	Corridors	91	0	0	0.06	0.8	7
VAV-1-6	175-SHWR	Corridors	18	0	0	0.06	0.8	1

UNCORRECTED OA INTAKE FLOW REQUIRED (Vou) = 997
SYSTEM VENTILATION EFFICIENCY (Ev) = 0.68
OUTDOOR AIR INTAKE FLOW REQUIRED TO SYSTEM (Vot) = 1,466
TOTAL OUTDOOR AIR SUPPLIED = 1,500

OUTDOOR AIR CALCULATIONS

UNIT TAG	ROOM NAME	OCCUPANCY CLASSIFICATION	AREA SQ FT	OCCUPANT DENSITY (#/1000 SQ. FT)	PEOPLE OUTDOOR AIRFLOW RATE (CFM/PERSON)	AREA OUTDOOR AIRFLOW RATE (CFM/SQ. FT)	ZONE DISTRIBUTION EFFECTIVENESS, Ez	CALCULATED OA CFM
VAV-4-1	125-Program Office	Office space	100	5	5	0.06	0.8	11
VAV-4-1	126-Program Office	Office space	111	5	5	0.06	0.8	12
VAV-4-1	127-Program Office	Office space	111	5	5	0.06	0.8	12
VAV-4-1	128-Program Office	Office space	111	5	5	0.06	0.8	12
VAV-4-1	129-Program Office	Office space	111	5	5	0.06	0.8	12
VAV-4-1	130-Electrical Closet	Warehouses	77	10	10	0.06	0.8	6
VAV-4-1	156-Program Office	Office space	117	5	5	0.06	0.8	12
VAV-4-1	157-Beauty Barber	Barbershop	99	7.5	7.5	0.06	0.8	26
VAV-4-2	142-General Warehouse	Warehouses	1932	10	5	0.06	0.8	145
VAV-4-2	143-Store Keeper	Office space	116	5	10	0.06	0.8	12
VAV-4-4	123-Multi-purpose	Libraries	905	5	5	0.12	0.8	192
VAV-4-4	123-1 Office	Office space	110	5	10	0.06	0.8	12
VAV-4-3	132-Laundry	Laundry rooms, central	218	5	5	0.12	0.8	39
VAV-4-3	133-Workshop	Shipping/receiving	1037	10	5	0.12	0.8	181
VAV-4-3	134-Maintenance Director	Office space	122	5	5	0.06	0.8	13
VAV-4-3	135-Maintenance Office	Office space	109	5	10	0.06	0.8	12
VAV-4-3	136-Toilet	Office space	49	5	10	0.06	0.8	5
VAV-4-3	137-Water Heater	Warehouses	451	10	5	0.06	0.8	34
VAV-4-3	138-Tele	Warehouses	54	10	10	0.06	0.8	4
VAV-4-3	141-Volatile Storage	Office space	115	5	5	0.06	0.8	12
VAV-4-5	112-Prop Storage	Occupiable storage rooms for dry materials	293	5	5	0.06	0.8	26
VAV-4-5	114-Classroom	Dayroom	309	5	5	0.06	0.8	81
VAV-4-5	116-Classroom	Dayroom	312	5	5	0.06	0.8	82
VAV-4-5	119-Classroom	Dayroom	300	5	0	0.06	0.8	79
VAV-4-5	123-2 Stairs	Corridors	152	0	5	0.06	0.8	11
VAV-4-6	113-Classroom	Dayroom	296	5	5	0.06	0.8	78
VAV-4-6	115-Classroom	Dayroom	293	5	5	0.06	0.8	77
VAV-4-6	117-Classroom	Cell	297	5	5	0.12	0.8	91
VAV-4-6	118-Program Storage	Occupiable storage rooms for dry materials	138	5	5	0.06	0.8	12
VAV-4-6	120-Library	Libraries	147	5	5	0.12	0.8	31
VAV-4-6	121-Toilet	Office space	70	5	5	0.06	0.8	7
VAV-4-6	122-Toilet	Office space	70	5	0	0.06	0.8	7
VAV-4-6	111-Corridor	Corridors	833	0	0	0.06	0.8	62
VAV-4-7	101-1-Stairs	Corridors	116	0	5	0.06	0.8	9
VAV-4-7	200-Reception	Reception areas	299	5	5	0.06	0.8	78
VAV-4-7	203-Assistant Supervisor	Office space	135	5	5	0.06	0.8	14
VAV-4-7	206-Super intendant	Office space	188	5	5	0.06	0.8	20
VAV-4-7	207-Admin Security	Office space	115	5	10	0.06	0.8	12
VAV-4-7	208-Work Room	Shipping/receiving	133	10	5	0.12	0.8	23
VAV-4-7	209-Business	Office space	289	5	5	0.06	0.8	31
VAV-4-8	201-Mens Restroom	Office space	36	5	5	0.06	0.8	4
VAV-4-8	202-Womens Restroom	Office space	36	5	5	0.06	0.8	4
VAV-4-8	204-Conference Room	Conference/meeting	317	5	5	0.06	0.8	99
VAV-4-8	210-Records	Office space	344	5	5	0.06	0.8	37
VAV-4-8	212-Clerical Staff	Office space	317	5	5	0.06	0.8	34
VAV-4-8	215-Investigator	Office space	126	5	5	0.06	0.8	13
VAV-4-8	216-Personnel	Office space	133	5	5	0.06	0.8	14
VAV-4-8	220-Shift Supervisor	Office space	116	5	0	0.06	0.8	12
VAV-4-8	167-Corridor	Corridors	335	0	0	0.06	0.8	25
VAV-4-8	167-Corridor	Corridors	805	0	0	0.06	0.8	60

UNCORRECTED OA INTAKE FLOW REQUIRED (Vou) = 1,524
SYSTEM VENTILATION EFFICIENCY (Ev) = 0.65
OUTDOOR AIR INTAKE FLOW REQUIRED TO SYSTEM (Vot) = 2,343
TOTAL OUTDOOR AIR SUPPLIED = 2,350

AIRFLOW MEASURING STATION SCHEDULE:

TAG NO.	AHU TAG	MANUFACTURER	APPLICATION	AIR DATA						NOTES
				MOUNTING TYPE	WIDTH (IN)	HEIGHT (IN)	AREA (SF)	VOLUME (CFM)	VELOCITY (FPM)	
AMS-1	AHU-1	EBTRON	OUTSIDE AIR	DUCT (SQUARE)	36	12	3.00	1500	500	1
AMS-2	AHU-2	EBTRON	OUTSIDE AIR	DUCT (ROUND)	8	8	0.35	345	989	1
AMS-3	AHU-3	EBTRON	OUTSIDE AIR	DUCT (ROUND)	14	14	1.07	1500	1404	1
AMS-4	AHU-4	EBTRON	OUTSIDE AIR	DUCT (SQUARE)	20	16	2.22	2350	1058	1
AMS-5	AHU-5	EBTRON	OUTSIDE AIR	DUCT (ROUND)	12	12	0.79	720	917	1
AMS-6	AHU-6	EBTRON	OUTSIDE AIR	DUCT (ROUND)	12	12	0.79	720	917	1
AMS-7	AHU-7	EBTRON	OUTSIDE AIR	DUCT (ROUND)	12	12	0.79	720	917	1
AMS-8	AHU-8	EBTRON	OUTSIDE AIR	DUCT (ROUND)	12	12	0.79	720	917	1
AMS-9	AHU-9	EBTRON	OUTSIDE AIR	DUCT (ROUND)	12	12	0.79	720	917	1
AMS-10	AHU-10	EBTRON	OUTSIDE AIR	DUCT (ROUND)	12	12	0.79	720	917	1
AMS-11	AHU-11	EBTRON	OUTSIDE AIR	DUCT (SQUARE)	10	10	0.69	480	691	1
AMS-12	AHU-12	EBTRON	OUTSIDE AIR	DUCT (SQUARE)	10	8	0.56	360	648	1
AMS-13	AHU-13	EBTRON	OUTSIDE AIR	DUCT (SQUARE)	10	8	0.56	330	594	1
AMS-14	AHU-14	EBTRON	OUTSIDE AIR	DUCT (SQUARE)	14	12	1.17	920	789	1

NOTES:
1) COORDINATE WITH EBTRON FOR SENSOR, PROBE, SIGNAL, AND VOLTAGE REQUIREMENTS.

SINGLE ZONE OUTSIDE AIR CALCULATION

UNIT TAG	AREA SERVED	OCCUPANCY CATEGORY	AREA (SF)	DEFAULT # OF PEOPLE PER 1000SF	# OF PEOPLE	AREA OA RATE (CFM)	PEOPLE OA RATE (CFM)	ZONE DISTRIBUTION EFFECTIVENESS (EZ)	TOTAL OA REQUIRED	TOTAL OA PROVIDED
AHU-2	KITCHEN	Kitchen (cooking)	2000	20	12.0	0.12	7.5	0.8	413	420
AHU-3	RESIDENT DINING	Cafeteria/fast-food dining	1758	100	110.0	0.18	7.5	0.8	1427	1500
AHU-5	HOUSING	Barracks sleeping areas	5093	20	65.0	0.06	5	0.8	789	790
AHU-6	HOUSING	Barracks sleeping areas	5078	20	65.0	0.06	5	0.8	788	790
AHU-7	HOUSING	Barracks sleeping areas	4619	20	65.0	0.06	5	0.8	753	790
AHU-8	HOUSING	Barracks sleeping areas	4945	20	65.0	0.06	5	0.8	778	790
AHU-9	HOUSING	Barracks sleeping areas	5101	20	65.0	0.06	5	0.8	789	790
AHU-10	HOUSING	Barracks sleeping areas	5083	20	65.0	0.06	5	0.8	788	790
AHU-11	STORAGE AREA	Storage rooms	2881	0	10.0	0.12	0	0.8	433	480
AHU-12	ADMIN/OFFICE	Office space	1391	5	26.0	0.06	5	0.8	267	360
AHU-13	TOILET/SHOWERS	Office space	652	5	5.0	0.06	5	0.8	81	330
AHU-14	SLEEPING DORM	Barracks sleeping areas	3706	20	60.0	0.06	5	0.8	653	900

NOTES:
* VENTILATION CALCULATIONS ABOVE ARE BASED ON VENTILATION RATES FROM ASHRAE 62.1 TABLE 6.2.2.1

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

MECHANICAL SCHEDULES

SHEET NUMBER:

M603

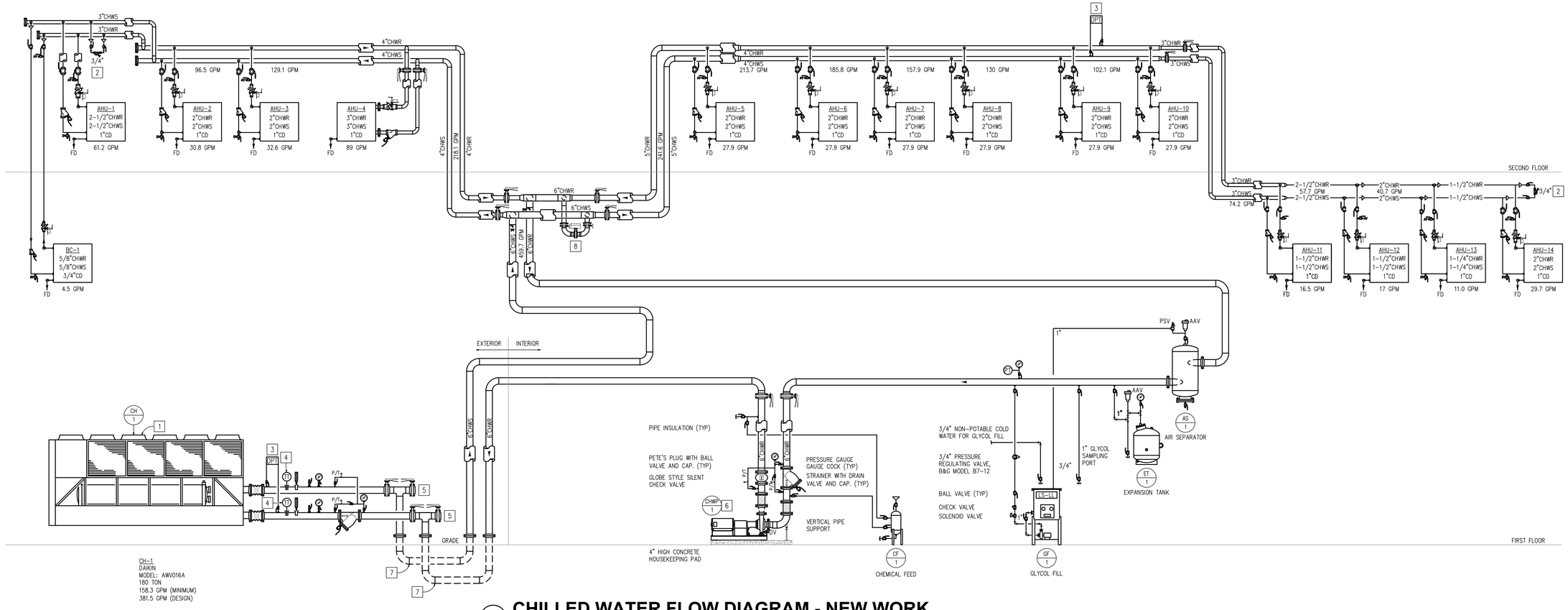
61 OF 111 SHEETS
MARCH 21, 2023

KEY NOTES:

1. COORDINATE ALL WORK WITH CONTROLS CONTRACTOR. RE: M502 FOR TYPICAL CHILLER CONNECTION DETAIL AND RE: M602 FOR AIR COOLED CHILLER SCHEDULE. RE: BA701 FOR CHILLED WATER CONTROL SCHEMATIC.
2. PROVIDE 3/4" BYPASS LINE WITH CIRCUIT SETTER AND NORMALLY OPEN VALVES CAPABLE OF LOCKING IN THE OPEN AND CLOSED POSITIONS. PROVIDE DRAIN VALVE AND CAP AT LOW POINT OF PIPING. INITIALLY SET CIRCUIT SETTER FOR 2GPM.
3. INSTALL DIFFERENTIAL PRESSURE TRANSMITTER IN LOCATION SHOWN. RE:MP101D FOR SENSOR LOCATION.
4. PROVIDE 3/4" TEMPERATURE SENSOR WELL IN LOCATION SHOWN FOR INSTALLATION OF TEMPERATURE SENSOR BY CONTROLS CONTRACTOR. COORDINATE ALL WORK WITH CONTRACTOR.
5. CHILLED WATER PIPING FOR TEMPORARY CHILLER. PROVIDE AND INSTALL BLIND FLANGES WITH ISOLATION VALVES FOR EASE OF CONNECTION. RE: MECHANICAL NEW WORK PLANS FOR ROUTING.
6. PROVIDE NEW CHILLED WATER PUMP AS SHOWN. COORDINATE ALL WORK WITH CONTROLS CONTRACTOR. RE: M502 FOR TYPICAL CONNECTION DETAILS AND CHILLED WATER PUMP SCHEDULE.
7. COORDINATE LOCATION WITH EXISTING DOMESTIC COLD WATER MAIN APPROXIMATELY 5'-0" BELOW GRADE. ROUTE NEW CHILLED WATER PIPING BELOW EXISTING DOMESTIC COLD WATER MAIN. PROVIDE CONCRETE CAP WHERE NEW PIPING INTERSECTS EXISTING DOMESTIC COLD WATER PIPE. RE: SPECS FOR BELOW GRADE PIPING TYPES.
8. PROVIDE 4" BYPASS ISOLATION VALVES AND INSTALL BYPASS VALVE IN LOCATION SHOWN. TRANSITION PIPING AS NECESSARY.

GENERAL NOTES:

1) RE: M001 FOR GENERAL NOTES & SYMBOLS
2) RE: M500 & M600 SERIES DRAWINGS FOR MECHANICAL DETAILS AND EQUIPMENT SCHEDULES



1 CHILLED WATER FLOW DIAGRAM - NEW WORK

SCALE: NOT TO SCALE

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
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DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

MECHANICAL SCHEMATICS

SHEET NUMBER:

M701

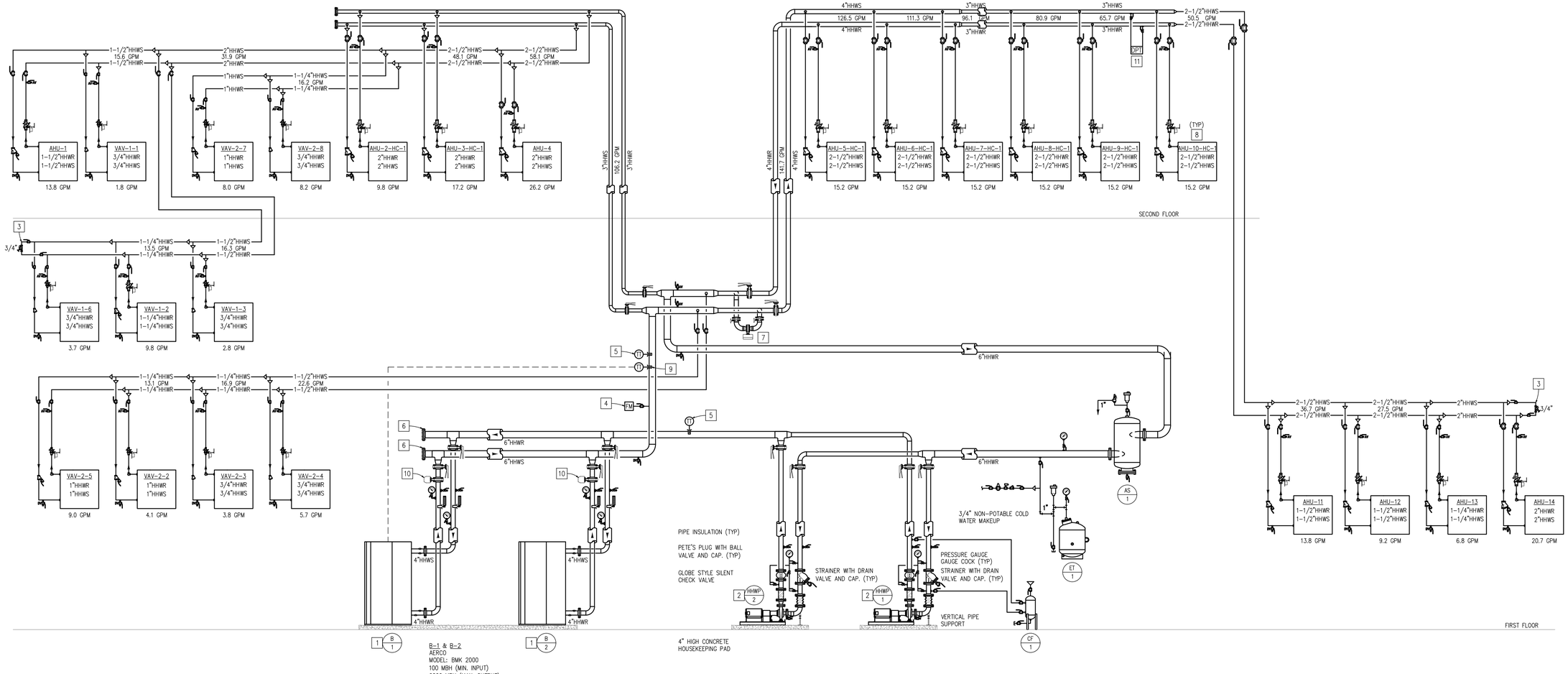
62 OF 111 SHEETS
MARCH 21, 2023

KEY NOTES:

1. COORDINATE ALL WORK WITH CONTROLS CONTRACTOR. RE: M501 FOR TYPICAL BOILER CONNECTION DETAIL AND RE: M601 FOR BOILER SCHEDULE.
2. PROVIDE NEW HEATING HOT WATER PUMPS AS SHOWN. COORDINATE ALL WORK WITH CONTROLS CONTRACTOR. RE: M502 FOR TYPICAL CONNECTION DETAILS AND M601 FOR HEATING HOT WATER PUMP SCHEDULE.
3. PROVIDE 3/4" BYPASS LINE WITH CIRCUIT SETTER AND NORMALLY OPEN VALVES CAPABLE OF LOCKING IN THE OPEN AND CLOSED POSITIONS. PROVIDE DRAIN VALVE AND CAP AT LOW POINT OF PIPING.
4. PROVIDE 1-1/4" BRANCH OUTLET, 1-1/4" CLOSE NIPPLE, 1-1/4" FULL PART BALL VALVE, AND 1" REDUCER FOR INSTALLATION OF NEW DUAL TURBINE FLOW METER. COORDINATE INSTALLATION REQUIREMENTS WITH CONTROLS CONTRACTOR.
5. PROVIDE 3/4" TEMPERATURE SENSOR WELL IN LOCATION SHOWN FOR INSTALLATION OF TEMPERATURE SENSOR BY CONTROLS CONTRACTOR. COORDINATE ALL WORK WITH CONTRACTOR.
6. HEATING HOT WATER PIPING FOR TEMPORARY BOILER. PROVIDE AND INSTALL BLIND FLANGES WITH ISOLATION VALVES FOR EASE OF CONNECTION. RE: MECHANICAL NEW WORK PLANS FOR ROUTING.
7. PROVIDE 3" BYPASS ISOLATION VALVES AND INSTALL BYPASS CONTROL VALVE IN LOCATION SHOWN. TRANSITION PIPING AS NECESSARY.
8. PIPING SIZE SHOWN IS COIL RUN OUT SIZE. ALL ISOLATION VALVES, STRAINERS, ETC. SHALL BE THIS SIZE. TRANSITION PIPING AS NECESSARY FOR CONNECTORS TO CONTROL VALVES AND COIL CONNECTIONS.
9. PROVIDE 3/4" THERMOWELL FOR MASTER BOILER CONTROLLER REMOTE SUPPLY WATER TEMPERATURE SENSOR. PROVIDE ALL NECESSARY CONTROL WIRE AND CONDUIT BETWEEN SENSOR AND BOILER MASTER CONTROLLER.
10. INSTALL BOILER ISOLATION CONTROL VALVE PROVIDED WITH BOILER.
11. INSTALL DIFFERENTIAL PRESSURE TRANSMITTER IN LOCATION SHOWN.

GENERAL NOTES:

1) RE: M001 FOR GENERAL NOTES & SYMBOLS
2) RE: M500 & M600 SERIES DRAWINGS FOR MECHANICAL DETAILS AND EQUIPMENT SCHEDULES



1 HEATING HOT WATER FLOW DIAGRAM - NEW WORK

SCALE: NOT TO SCALE

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
PROFESSIONAL ENGINEER

MEP ENGINEER:

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
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DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

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DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

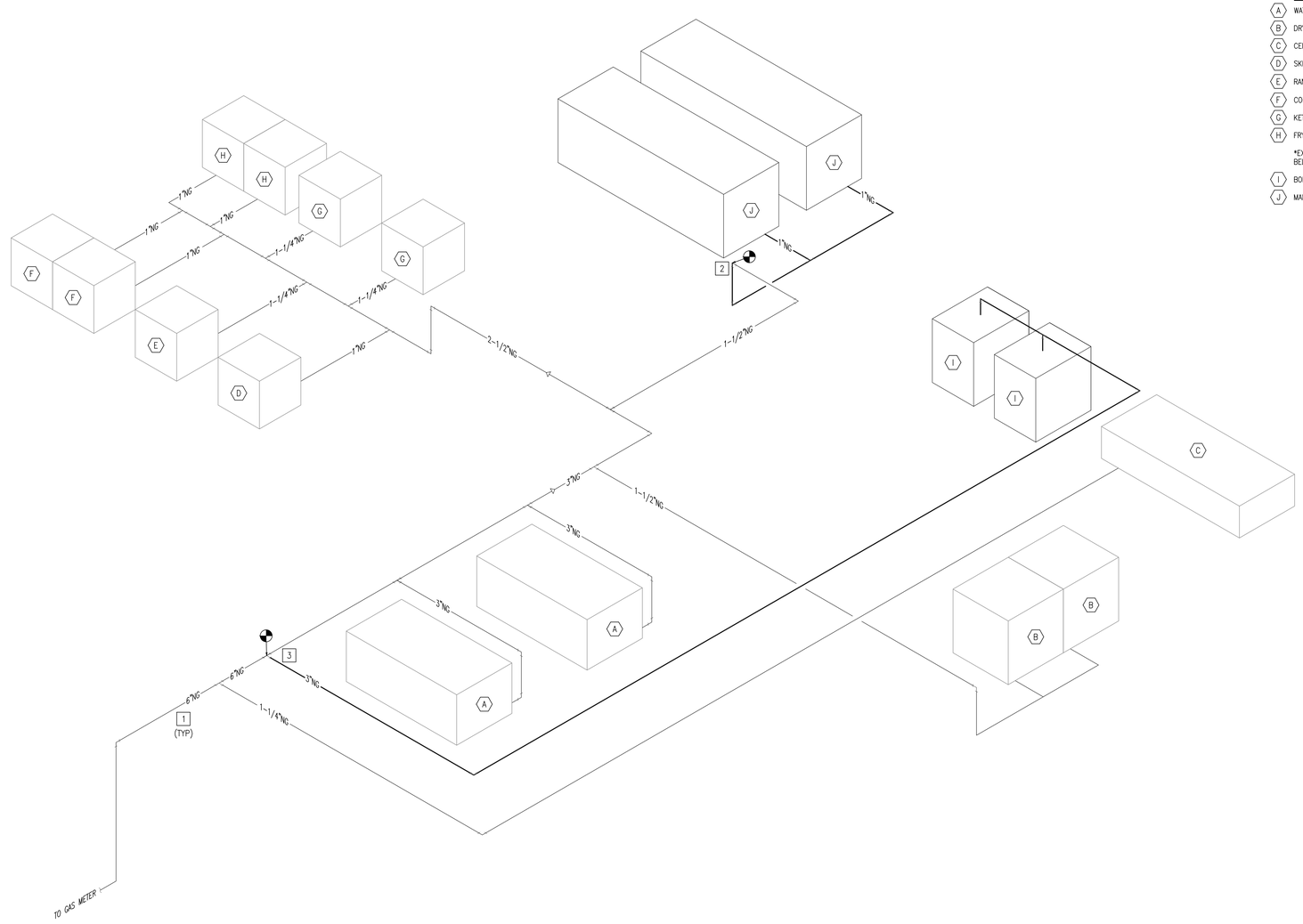
SHEET TITLE:

MECHANICAL SCHEMATICS

SHEET NUMBER:

M702

63 OF 111 SHEETS
MARCH 21, 2023



KEY NOTES:

1. EXISTING GAS PIPING SHOWN FOR REFERENCE. CONTRACTOR TO FIELD VERIFY SIZES AS NECESSARY.
2. CONNECT NEW GAS PIPING TO EXISTING. RE: MP101B SERIES FOR CONNECTION LOCATION.
3. CONNECT NEW GAS PIPING TO EXISTING CAPPED PIPING. RE: MP101C SERIES FOR CONNECTION LOCATION.

GENERAL NOTES:

1) RE: M001 FOR GENERAL NOTES & SYMBOLS
2) RE: M500 & M600 SERIES DRAWINGS FOR MECHANICAL DETAILS AND EQUIPMENT SCHEDULES

EQUIPMENT LEGEND:

- A WATER HEATER
- B DRYER
- C CEILING MOUNTED SPACE HEATER
- D SKITTLE
- E RANGE/OVEN
- F CONVECTION OVEN
- G KETTLE
- H FRYER

*EXISTING EQUIPMENT LEGEND SHOWN ABOVE FOR REFERENCE ONLY. NEW EQUIPMENT SHOWN BELOW.

- I BOILER
- J MAKE-UP AIR UNIT

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
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M703

64 OF 111 SHEETS
MARCH 21, 2023

BUILDING AUTOMATION GENERAL NOTES:

1. ALL CONTROLS EQUIPMENT NOT BEING REUSED SHALL BE REMOVED IN ITS ENTIRETY. REMOVE ASSOCIATED CONTROL WIRING, CONDUIT, ETC. PATCH, REPAIR, AND PAINT ALL OPENINGS, HOLES, AND PENETRATIONS BACK TO MATCH EXISTING ADJACENT SURFACES.
2. ALL INTELLIGENT CONTROLLERS RESIDING ON THE BACNET NETWORK SHALL BE BTL COMPLIANT FOR COMPLETE INTEROPERABILITY.
3. THE CONTRACT DRAWINGS INDICATE APPROXIMATE LOCATIONS OF EQUIPMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL COMPONENT LOCATIONS BASED UPON THE INTENT OF THE DESIGN, SPECIFICATIONS, AND DRAWINGS. MODIFICATION OF PANEL LOCATIONS SHALL BE APPROVED BY ARCHITECT AND COORDINATED WITH ELECTRICAL TRADES.
4. THE CONTRACT DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL COMPONENTS, MATERIALS, EXACT CABLE ROUTING, CONDUIT, AND OTHER CONSIDERATIONS THAT MAY BE REQUIRED FOR PROPER SYSTEM OPERATION.
5. ALL MATERIAL AND EQUIPMENT USED IN THIS INSTALLATION SHALL BE NEW, AND SHALL HAVE THE APPROPRIATE UL LISTING AND FACTORY MUTUAL (FM) APPROVAL. ALL MATERIALS SHALL COMPLY WITH ALL APPLICABLE LOCAL AND NATIONAL CODES, STANDARDS, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
6. CONTRACTOR SHALL PERFORM ALL WORK AND INSTALL ALL COMPONENTS IN A PROFESSIONAL AND WORKMANLIKE MANNER. ALL FINISH WORK TO BE TRUE, LEVEL, AND PLUMB. ALL JOINTS TO BE TIGHT AND CLEAN.
7. ALL WORK SHALL BE PERFORMED IN FULL COMPLIANCE WITH ALL APPLICABLE LOCAL AND NATIONAL CODES, STANDARDS AND ALL APPLICABLE AMENDMENTS. WHERE REQUIRED BY THE AUTHORITY HAVING JURISDICTION, THE CONTRACTOR SHALL ISSUE PUBLIC NOTICES.
8. USE 18 GAUGE, STRANDED, SHIELDED, TWISTED PAIR WIRE FOR ALL TWO CONDUCTOR SENSOR WIRING.
9. SPLICING OF COMMUNICATION CABLE BETWEEN DEVICES IS NOT ALLOWED.
10. STAND ALONE OPERATION IS REQUIRED FOR ALL EQUIPMENT. SEQUENCE OF OPERATION MUST NOT BE DEPENDENT ON LOCAL OPERATING NETWORK COMMUNICATIONS EXCLUDING OUTSIDE AIR CONDITION VARIABLES REQUIRED FOR USE BY MULTIPLE CONTROLLERS. EACH PIECE OF MECHANICAL EQUIPMENT MUST BE CONTROLLED BY A SINGLE BACNET CONTROLLER. REMOTE I/O MODULES SHALL NOT BE ALLOWED FOR CONTROL POINTS OR POINTS WHICH ARE REQUIRED TO ACHIEVE THE SEQUENCE OF OPERATION WITHOUT THE USE OF A BACNET ROUTER AND SEPARATE SUB NET.
11. CONTROL PANELS SHOWN ON DRAWING ARE SCHEMATIC ONLY AND ARE NOT TO SCALE. CONTRACTOR SHALL PROVIDE PANELS AS NECESSARY TO HOUSE THE REQUIRED CONTROL EQUIPMENT. CONTRACTOR SHALL COORDINATE EXACT PLACEMENT OF PANELS WITH SURROUNDING EQUIPMENT.
12. CONTRACTOR SHALL VERIFY NODE COUNT PER NETWORK AND CONFORM TO THE ARCHITECTURE GUIDELINES SPECIFIED BY THE MANUFACTURER OF THE NETWORK CONTROLLER AND BY ANSI / ASHRAE BACNET STANDARDS 135.
13. INSTALL THE CENTER OF ALL CONTROL PANELS AT 60" TYPICAL ELEVATION WHEN FEASIBLE.
14. LABEL BOTH ENDS OF CONTROL WIRING WITH POINT NAME, CONTROLLER NAME, AND POINT NUMBER.
15. GROUND ALL SHIELDS AT ONE END ONLY TO AVOID GROUND LOOPS. TERMINATE GROUND CONDUCTORS FIRST. TERMINATE AT EQUIPMENT WHEN FEASIBLE.
16. CONTRACTOR SHALL COORDINATE EQUIPMENT PURCHASES WITH THE POINT LISTS IN THESE DOCUMENTS. CONTRACTOR SHALL BE REQUIRED TO ADD HARDWARE AND LOGIC TO MEET THE POINTS IN THESE DOCUMENTS.
17. THE BAS CONTRACTOR IS 100% RESPONSIBLE FOR PROVIDING OR COORDINATING WITH PURCHASING TRADE THE SUPPLY OF NETWORK OR RELAY INTERFACE CARDS, GATEWAYS, MICROPROCESSORS, ETC. TO ACCOMPLISH THE CONTROL AND MONITORING INTENT OF THOSE DRAWINGS.
18. ALL FIRE RATED ASSEMBLIES SHALL BE MAINTAINED. CAULK AROUND MECHANICAL PENETRATIONS WITH FIRE BARRIER CAULK (THICKNESS AS REQUIRED AND RECOMMENDED BY MANUFACTURER) TO MAINTAIN FIRE RESISTANCE RATING OF THE FIRE RATED ASSEMBLY.
19. FIELD VERIFY ALL THERMOSTAT LOCATIONS FOR FIELD CONFLICTS INCLUDING UNFORESEEN WALL SPACE RESTRICTIONS, WIRING RESTRICTIONS, AND THERMAL INTERFERENCE FROM EQUIPMENT AND OR SUNLIGHT. NOTIFY OWNER OF ALL CONFLICTS PRIOR TO INSTALLATION.
20. THE CONTRACTOR SHALL LABEL ALL NEW DEVICES AND WIRING TERMINATIONS WITH THE PROPER NAMING CONVENTION.
21. ALL EXPOSED CONTROL WIRING SHALL BE INSTALLED IN CONDUIT. ALL WIRING ROUTED IN RETURN AIR PLENUM SHALL UTILIZE PLENUM RATED CABLE. ALL WALL MOUNTED DEVICES SHALL BE RECESSED AND WIRING CONCEALED OVERHEAD. ALL EXPOSED CONDUIT, SUPPORTS, AND ANCHORS SHALL BE PAINTED TO MATCH ADJACENT SURFACES.
22. ROUTE ALL CIRCUITRY PARALLEL AND PERPENDICULAR TO BUILDING LINES AND AS HIGH OR AS LOW AS POSSIBLE. ALL CIRCUITRY AND CONDUIT SHALL BE SIZED PER NEC REQUIREMENTS.
23. COORDINATE POWER WIRING FOR BMS CONTROL DEVICES WITH ELECTRICAL CONTRACTOR.
24. PROVIDE LAMINATED POINTS LIST FOR ALL NEW AND MODIFIED CONTROLLERS AND ATTACH TO THE INSIDE OF THE ASSOCIATED CONTROL PANEL ENCLOSURE.
25. PROVIDE AN ELECTRONIC COPY (FILES IN PDF OR DWG FORMATS) OF SUBMITTALS FOR ALL HARDWARE AND SOFTWARE THE ENGINEER. SUBMITTALS SHALL INCLUDE A COMPLETE BILL OF MATERIAL, SCHEMATICS FOR EACH PIECE OF EQUIPMENT, SEQUENCE OF OPERATIONS, POINTS LIST, CONTROL VALVE SCHEDULE, DAMPER SCHEDULE, AND MANUFACTURER'S CUT SHEETS. PROVIDE RED LINE AS-BUILT DRAWINGS TO OWNER AND OPERATING AND MAINTENANCE MANUAL.
26. CONTRACTOR SHALL PROVIDE A TRAINING MANUAL AT LEAST 2 WEEKS PRIOR TO ONSITE TRAINING. CONTRACTOR SHALL ASSUME A MINIMUM OF 1 DAY(S) OF ONSITE TRAINING FOR OPERATIONS AND MAINTENANCE PERSONNEL.
27. CONTRACTOR SHALL ASSIST TAB AND CxA AGENT TO PERFORM THEIR WORK. CONTROLS CONTRACTOR SHALL PROVIDE TAB WITH ALL NECESSARY TAB PROGRAMS, ETC. AS NECESSARY TO CALIBRATE VAV BOXES. CONTRACTOR SHALL ALLOW ACCESS TO CONTROLS SYSTEM TO COMMISSIONING AGENT AND ASSIST IN COMMISSIONING ACTIVITIES AND SHALL ASSUME A MINIMUM OF ONE TECHNICIAN FOR 2 DAYS.
28. WARRANT LABOR AND MATERIALS FOR SPECIFIED CONTROL SYSTEM FREE FROM DEFECTS FOR A PERIOD OF 12 MONTHS AFTER FINAL ACCEPTANCE. CONTROL SYSTEM FAILURES DURING WARRANTY PERIOD SHALL BE ADJUSTED, REPAIRED, OR REPLACED AT NO ADDITIONAL COST OR REDUCTION IN SERVICE TO OWNER. RESPOND DURING NORMAL BUSINESS HOURS WITHIN 24 HOURS OF OWNER'S WARRANTY SERVICE REQUEST.

BUILDING AUTOMATION GENERAL NOTES CONT:

29. CONTROL PRODUCTS, COMMUNICATION MEDIA, CONNECTORS, REPEATERS, HUBS, AND ROUTERS SHALL COMPRISE A BACNET INTERNETWORK. CONTROLLER AND OPERATOR INTERFACE COMMUNICATION SHALL CONFORM TO ANSI/ASHRAE STANDARD 135, BACNET.
30. EACH CONTROLLER SHALL HAVE A COMMUNICATION PORT FOR TEMPORARY CONNECTION TO A LAPTOP COMPUTER OR OTHER OPERATOR INTERFACE. CONNECTION SHALL SUPPORT MEMORY DOWNLOADS AND OTHER COMMISSIONING AND TROUBLESHOOTING OPERATIONS.
31. WORKSTATIONS, BUILDING CONTROL PANELS, AND CONTROLLERS WITH REAL-TIME CLOCKS SHALL USE THE BACNET TIME SYNCHRONIZATION SERVICE. SYSTEM SHALL AUTOMATICALLY SYNCHRONIZE SYSTEM CLOCKS DAILY FROM AN OPERATOR-DESIGNATED DEVICE VIA THE INTERNETWORK. THE SYSTEM SHALL AUTOMATICALLY ADJUST FOR DAYLIGHT SAVING AND STANDARD TIME AS APPLICABLE.
32. SYSTEM GRAPHICS. THE OPERATOR INTERFACE SOFTWARE SHALL BE GRAPHICALLY BASED AND SHALL INCLUDE AT LEAST ONE GRAPHIC PER PIECE OF EQUIPMENT OR OCCUPIED ZONE, GRAPHICS FOR EACH CHILLED WATER AND HOT WATER SYSTEM, AND GRAPHICS THAT SUMMARIZE CONDITIONS ON EACH FLOOR OF EACH BUILDING INCLUDED IN THIS CONTRACT.
    - 32.1. FUNCTIONALITY. GRAPHICS SHALL ALLOW OPERATOR TO MONITOR SYSTEM STATUS, TO VIEW A SUMMARY OF THE MOST IMPORTANT DATA FOR EACH CONTROLLED ZONE OR PIECE OF EQUIPMENT, TO USE POINT-AND-CLICK NAVIGATION BETWEEN ZONES OR EQUIPMENT, AND TO EDIT SETPOINTS AND OTHER SPECIFIED PARAMETERS.
    - 32.2. ANIMATION. GRAPHICS SHALL BE ABLE TO ANIMATE BY DISPLAYING DIFFERENT IMAGE FILES FOR CHANGED OBJECT STATUS.
    - 32.3. ALARM INDICATION. INDICATE AREAS OR EQUIPMENT IN AN ALARM CONDITION USING COLOR OR OTHER VISUAL INDICATOR.
    - 32.4. FORMAT. GRAPHICS SHALL BE SAVED IN AN INDUSTRY-STANDARD FORMAT SUCH AS BMP, JPEG, PNG, OR GIF. WEB-BASED SYSTEM GRAPHICS SHALL BE VIEWABLE ON BROWSERS COMPATIBLE WITH WORLD WIDE WEB CONSORTIUM BROWSER STANDARDS. WEB GRAPHIC FORMAT SHALL REQUIRE NO PLUG-IN (SUCH AS HTML AND JAVASCRIPT) OR SHALL ONLY REQUIRE WIDELY AVAILABLE NO-COST PLUG-INS (SUCH AS ACTIVE-X AND ADOBE FLASH).
33. SCHEDULING. PROVIDE THE CAPABILITY TO EXECUTE CONTROL FUNCTIONS ACCORDING TO A USER CREATED OR EDITED SCHEDULE. EACH SCHEDULE SHALL PROVIDE THE FOLLOWING SCHEDULE OPTIONS AS A MINIMUM:
    - 33.1. WEEKLY SCHEDULE. PROVIDE SEPARATE SCHEDULES FOR EACH DAY OF THE WEEK. EACH SCHEDULE SHALL BE ABLE TO INCLUDE UP TO 5 OCCUPIED PERIODS (5 START-STOP PAIRS OR 10 EVENTS).
    - 33.2. EXCEPTION SCHEDULES. PROVIDE THE ABILITY FOR THE OPERATOR TO DESIGNATE ANY DAY OF THE YEAR AS AN EXCEPTION SCHEDULE. EXCEPTION SCHEDULES MAY BE DEFINED UP TO A YEAR IN ADVANCE. ONCE AN EXCEPTION SCHEDULE HAS EXECUTED, THE SYSTEM SHALL DISCARD AND REPLACE THE EXCEPTION SCHEDULE WITH THE STANDARD SCHEDULE FOR THAT DAY OF THE WEEK.
    - 33.3. HOLIDAY SCHEDULES. PROVIDE THE CAPABILITY FOR THE OPERATOR TO DEFINE UP TO 24 SPECIAL OR HOLIDAY SCHEDULES. THESE SCHEDULES WILL BE REPEATED EACH YEAR. THE OPERATOR SHALL BE ABLE TO DEFINE THE LENGTH OF EACH HOLIDAY PERIOD.
34. STANDARD REPORTS. FURNISH THE FOLLOWING STANDARD SYSTEM REPORTS:
    - 34.1. OBJECTS. SYSTEM OBJECTS AND CURRENT VALUES FILTERED BY OBJECT TYPE, BY STATUS (IN ALARM, LOCKED, NORMAL), BY EQUIPMENT, BY GEOGRAPHIC LOCATION, OR BY COMBINATION OF FILTER CRITERIA.
    - 34.2. ALARM SUMMARY. CURRENT ALARMS AND CLOSED ALARMS. SYSTEM SHALL RETAIN CLOSED ALARMS FOR AN ADJUSTABLE PERIOD.
    - 34.3. LOGS. SYSTEM SHALL LOG THE FOLLOWING TO A DATABASE OR TEXT FILE AND SHALL RETAIN DATA FOR AN ADJUSTABLE PERIOD:
    - 34.4. ALARM HISTORY.
    - 34.5. TREND DATA. OPERATOR SHALL BE ABLE TO SELECT TRENDS TO BE LOGGED.
    - 34.6. OPERATOR ACTIVITY. AT A MINIMUM, SYSTEM SHALL LOG OPERATOR LOG IN AND LOG OUT, CONTROL PARAMETER CHANGES, SCHEDULE CHANGES, AND ALARM ACKNOWLEDGMENT AND DELETION. SYSTEM SHALL DATE AND TIME STAMP LOGGED ACTIVITY.
35. SECURITY. EACH OPERATOR SHALL BE REQUIRED TO LOG ON TO THE SYSTEM WITH USER NAME AND PASSWORD IN ORDER TO VIEW, EDIT, ADD, OR DELETE DATA.
    - 35.1. OPERATOR ACCESS. THE USER NAME AND PASSWORD COMBINATION SHALL DEFINE ACCESSIBLE VIEWING, EDITING, ADDING, AND DELETING PRIVILEGES FOR THAT OPERATOR. USERS WITH SYSTEM ADMINISTRATOR RIGHTS SHALL BE ABLE TO CREATE NEW USERS AND EDIT THE PRIVILEGES OF ALL EXISTING USERS.
    - 35.2. AUTOMATIC LOG OUT. AUTOMATICALLY LOG OUT EACH OPERATOR IF NO KEYBOARD OR MOUSE ACTIVITY IS DETECTED. THIS AUTO LOGOFF TIME SHALL BE USER ADJUSTABLE.
    - 35.3. ENCRYPTED SECURITY DATA. STORE SYSTEM SECURITY DATA INCLUDING OPERATOR PASSWORDS IN AN ENCRYPTED FORMAT. SYSTEM SHALL NOT DISPLAY OPERATOR PASSWORDS.
36. DRIVE STARTUP: COORDINATE INTERNAL DRIVE SETTINGS WITH DRIVE STARTUP PERSONNEL. SETPOINTS PROVIDED BELOW SHALL BE UTILIZED UNTIL COORDINATION OCCURS. SET DECELERATION AND ACCELERATION TIMING TO 30 SECONDS (ADJ.).
37. RE: ELECTRICAL SPECIFICATIONS FOR CONDUIT AND WIRING REQUIREMENTS.

BUILDING AUTOMATION SYMBOLS

- MODBUS TERM — MODBUS TERMINATOR
- BACNET TERM — BACNET TERMINATOR
- VFD — VARIABLE FREQUENCY DRIVE (BACNET VFD INTERFACE CARD IF ON NETWORK RISER)
- VAV XX — BACNET VAV BOX CONTROLLER
- ROOM DCP-XX / UL-864 — DIRECT DIGITAL CONTROL PANEL
- RM XXXXX NCP-X — NETWORK CONTROL PANEL
- WORK STATION (GUI)
- 10/100MB UNMANAGED ETHERNET SWITCH
- CONTROL SYSTEM SERVER
- PT 0-2" — PRESSURE TRANSDUCER – INDICATES RANGE OF DEVICE
- DPT H 0-2" — DIFFERENTIAL PRESSURE TRANSDUCER – INDICATES RANGE OF DEVICE
- DPS H 0-2" — DIFFERENTIAL PRESSURE SWITCH – INDICATES RANGE OF DEVICE
- M — ELECTRONIC CONTROL VALVE
- T — TEMPERATURE SENSOR (RIGID ELEMENT IN WELL)
- T — DUCT TEMPERATURE SENSOR
- T — AVERAGING DUCT TEMPERATURE SENSOR
- TSLL — TEMPERATURE SWITCH LOW LIMIT (FREEZE STAT)
- H — DUCT HUMIDITY SENSOR
- DEW — DUCT DEWPOINT SENSOR
- CO2 — DUCT CO2 SENSOR
- SMK — DUCT SMOKE DETECTOR
- OR — FAN
- LEVEL SWITCH
- MSS / STARTER DISCONNECT
- CONTROL PANEL
- M OR — CURRENT SENSING TRANSDUCER (CT)
- AFS — AIRFLOW MONITORING STATION
- I — INTERLOCK
- R1 — CONTROL RELAY
- H — HUMIDITY SENSOR (MOUNT AT 60"AFF UNO)
- TH — COMBINATION TEMPERATURE & HUMIDITY SENSOR (MOUNT AT 60" AFF UNO)
- T — TEMPERATURE SENSOR (MOUNT AT 60" AFF UNO)
- T — PNEUMATIC THERMOSTAT (MOUNT AT 60" AFF UNO)
- T — THERMOSTAT PROVIDED WITH UNIT
- H — HUMIDIFIER.
- CO2 — CARBON DIOXIDE DETECTOR
- M — MOISTURE DETECTOR
- OR FSD-XXX / FS — SMOKE DAMPER. "XXX" SMOKE DAMPER NUMBER
- OR SD-XXX / SD — COMBINATION FIRE/SMOKE DAMPER. "XXX" FIRE/SMOKE DAMPER NUMBER
- OR CD-XXX / M / EOS — MOTORIZED CONTROL DAMPER. "XXX" MOTORIZED CONTROL DAMPER NUMBER
- DAMPER END SWITCH
- HUMIDIFIER
- CHILLED WATER/HOT WATER COIL
- DX — DIRECT EXPANSION COOLING COIL
- EHC — ELECTRIC HEATING COIL
- DAMPER
- FILTER
- CU 2 — MECHANICAL EQUIPMENT DESIGNATION
- # — PLAN NOTE DESIGNATION.
- CONNECT TO EXISTING.

I/O POINT TAG LEGEND

- DCP-X — INDICATES DIRECT DIGITAL CONTROLLER NAME (IF REQUIRED FOR CLARITY)
- 5 — INDICATES CONTROLLER POINT NUMBER
- AO — INDICATES CONTROL POINT TYPE
  - AI ANALOG INPUT
  - AO ANALOG OUTPUT
  - DI DIGITAL INPUT
  - DO DIGITAL OUTPUT

WIRE TYPE LEGEND

1. CAT6 / ETHERNET
2. EIA-485 MS/TP 2 WIRE TP CRITICAL BUS
3. EIA-485 MS/TP 2 WIRE TP-NONCRITICAL BUS
4. MISC. SENSOR CONTROLLER
5. MODBUS/ 3WIRE TP
6. MANUFACTURER SPECIFIC PROTOCOL

- ELECTRIC ANALOG CONTROL SIGNAL
- ELECTRIC BINARY SIGNAL
- SOFTWARE LINK
- PNEUMATIC CONTROL SIGNAL
- PNEUMATIC BINARY SIGNAL

CONTROL NOTATIONS

AI	ANALOG INPUT
AO	ANALOG OUTPUT
AV	ANALOG VALUE
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DV	DIGITAL VALUE
ARF	ABOVE RAISED FLOOR.
AFF	ABOVE FINISHED FLOOR.
UNO	UNLESS NOTED OTHERWISE
ICC	INDEPENDENT CONTROLS CONTRACTOR
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
I/C	INDICATES SINGLE CONDUCTOR CABLE.
"WP"	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATES WEATHER-PROOF ENCLOSURE.
"XP"	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATES EXPLOSION-PROOF ENCLOSURE.
60"	DIMENSIONS ADJACENT TO ANY SYMBOL INDICATES MOUNTING HEIGHT TO CENTERLINE OF DEVICE.
RE:1-BAXX	REFERENCE DESIGNATION SHEET NUMBER DETAIL/PLAN NUMBER

GENERAL NOTES:

1) THE SYMBOLS SHOWN ON THIS SHEET ARE A COMPLETE LIST OF SYMBOLS USED BY InSite Group, Inc. AND NOT ALL SYMBOLS OR ABBREVIATIONS MAY BE USED ON THIS PROJECT.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

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BAS SYMBOLS AND GENERAL NOTES

SHEET NUMBER:

BA001

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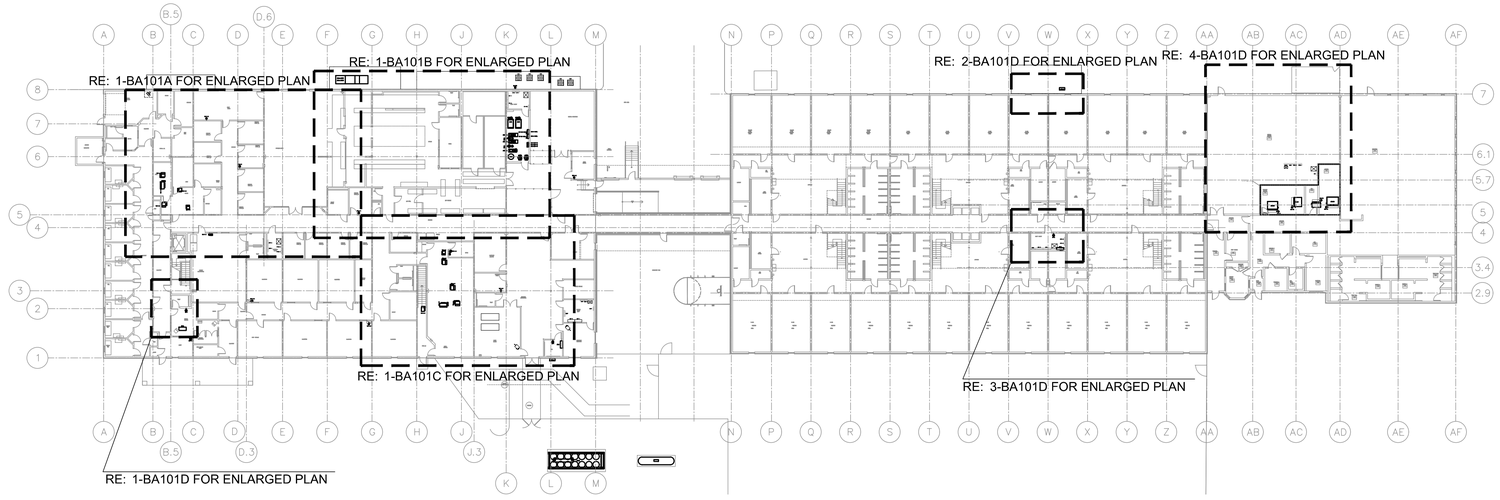

1 LEVEL 1 OVERALL BLDG. AUTOMATION NEW WORK PLAN
SCALE: 1/32" = 1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

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SHEET TITLE:

LEVEL 1 OVERALL BAS NEW WORK PLAN

SHEET NUMBER:

BA101

1 BAS AUTOMATION NEW WORK PLAN

SCALE: 1/4" = 1'-0"

PLAN NOTES:

1. PROVIDE TEMPERATURE SENSOR IN LOCATION SHOWN FOR PIECE OF EQUIPMENT INDICATED. PROVIDE ALL NECESSARY CONDUIT, WIRING, RELAYS, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.
2. PROVIDE COMBINATION TEMPERATURE AND CO2 SENSOR IN LOCATION SHOWN FOR PIECE OF EQUIPMENT INDICATED. PROVIDE ALL NECESSARY CONDUIT, WIRING, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.
3. PROVIDE RETURN AIR SENSORS IN LOCATION SHOWN FOR ASSOCIATED AHU. PROVIDE ALL NECESSARY CONDUIT, WIRING, RELAYS, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. EXTEND TEMPERATURE SENSOR INTO RETURN AIR DUCT FOR ASSOCIATED UNIT. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.

GENERAL NOTES:

1) RE: SHEET BA001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS BA500 SERIES FOR BAS SCHEMATICS, POINTS LIST AND SEQUENCE OF OPERATIONS.

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MICHAEL L. PARSON, GOVERNOR

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SHEET TITLE:

LEVEL 1
BAS
NEW WORK PLAN

SHEET NUMBER:

BA101A

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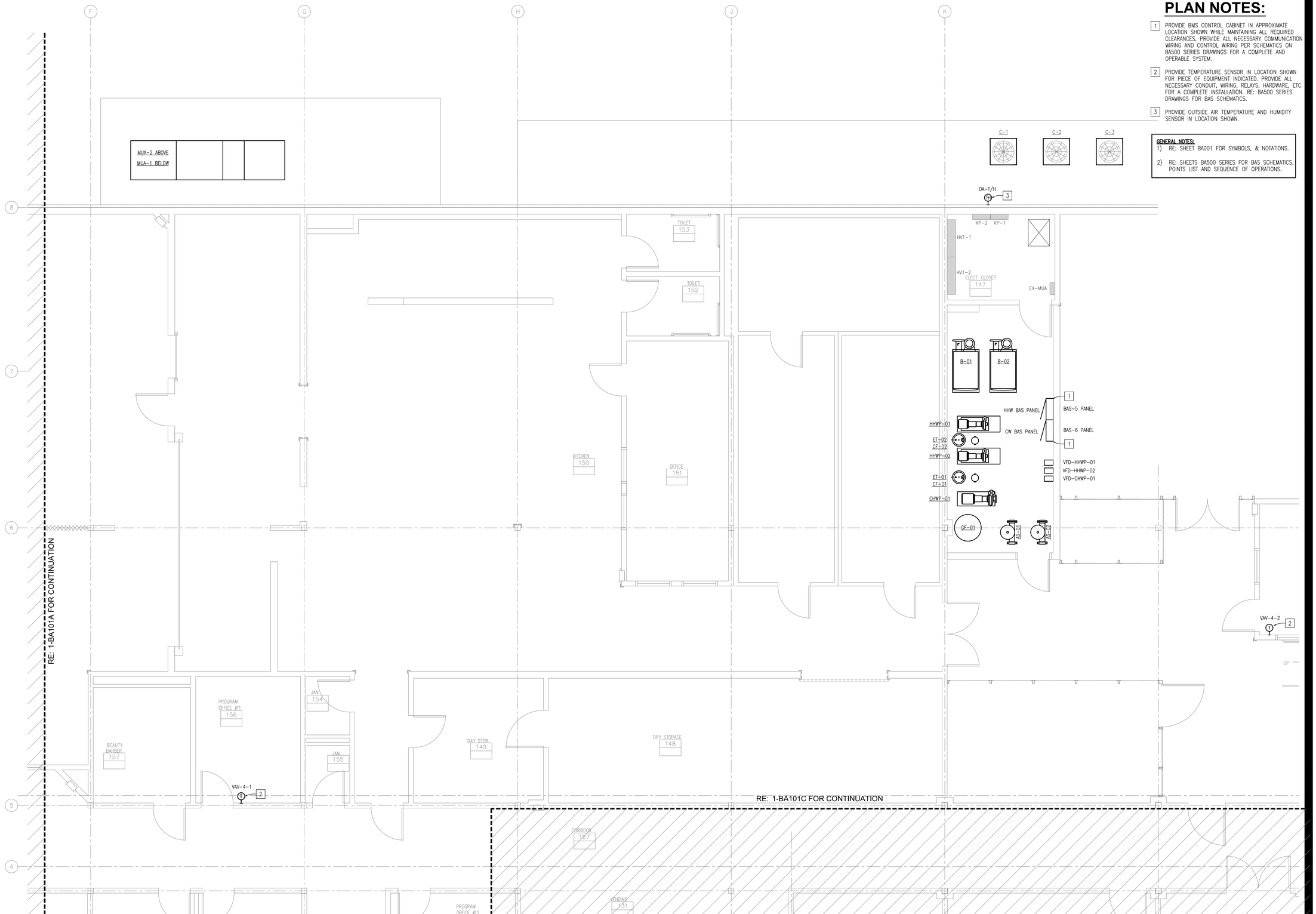

1 **LEVEL 1 BLDG. AUTOMATION NEW WORK PLAN**
SCALE: 1/4" = 1'-0"

PLAN NOTES:

1. PROVIDE BMS CONTROL CABINET IN APPROXIMATE LOCATION SHOWN WHILE MAINTAINING ALL REQUIRED CLEARANCES. PROVIDE ALL NECESSARY COMMUNICATION WIRING AND CONTROL WIRING PER SCHEMATICS ON BA500 SERIES DRAWINGS FOR A COMPLETE AND OPERABLE SYSTEM.
2. PROVIDE TEMPERATURE SENSOR IN LOCATION SHOWN FOR PIECE OF EQUIPMENT INDICATED. PROVIDE ALL NECESSARY CONDUIT, WIRING, RELAYS, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.
3. PROVIDE OUTSIDE AIR TEMPERATURE AND HUMIDITY SENSOR IN LOCATION SHOWN.

GENERAL NOTES:
1) RE: SHEET BA001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS BA500 SERIES FOR BAS SCHEMATICS, POINTS LIST AND SEQUENCE OF OPERATIONS.

STATE OF MISSOURI
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CURTIS L. BRUNGARDT
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
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REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1
BAS
NEW WORK PLAN

SHEET NUMBER:

BA101B

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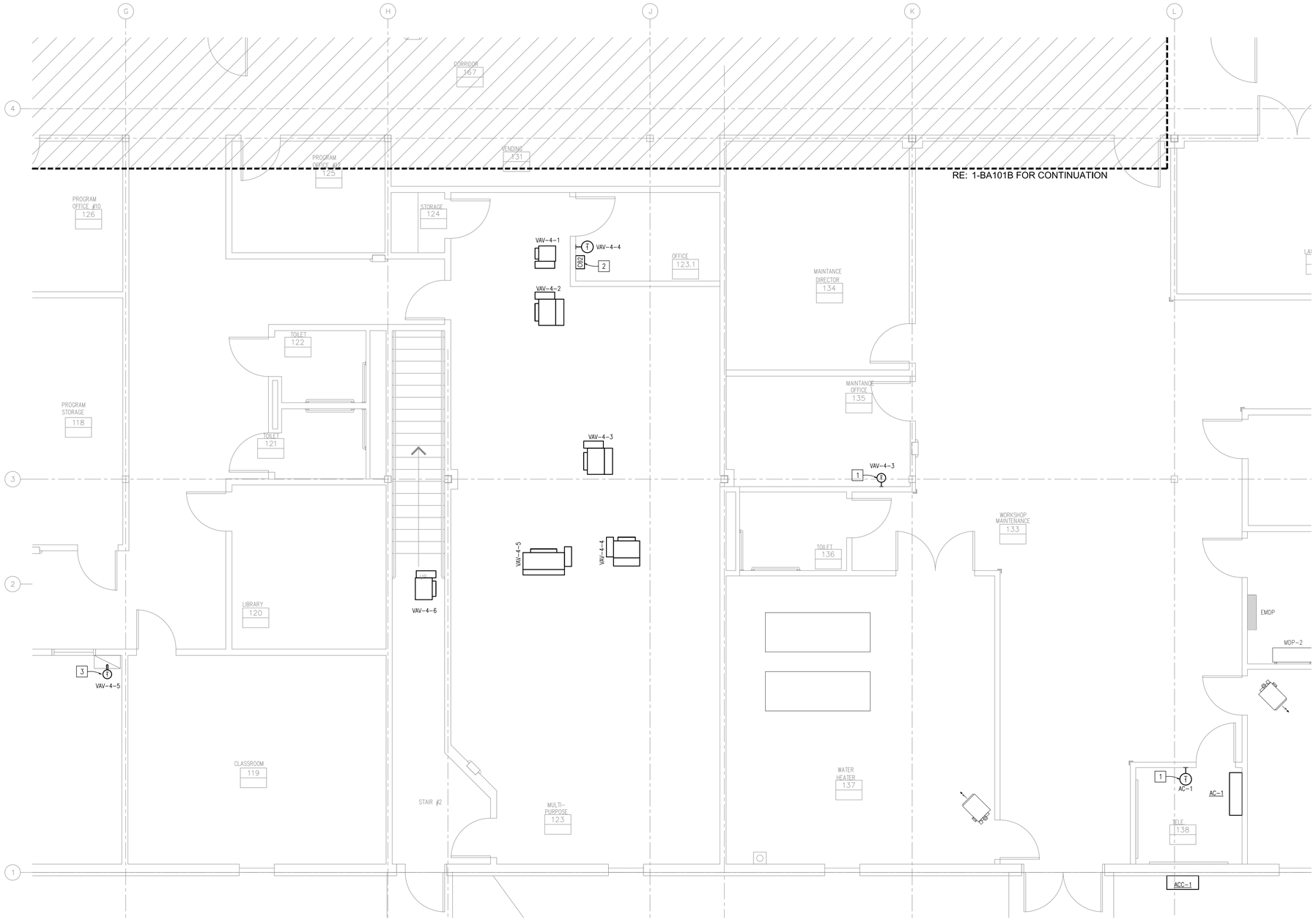
MARCH 21, 2023



1 LEVEL 1 BLDG. AUTOMATION NEW WORK PLAN

SCALE: 1/4" = 1'-0"

PLAN NOTES:

1. PROVIDE TEMPERATURE SENSOR IN LOCATION SHOWN FOR PIECE OF EQUIPMENT INDICATED. PROVIDE ALL NECESSARY CONDUIT, WIRING, RELAYS, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.
2. PROVIDE COMBINATION TEMPERATURE AND CO2 SENSOR IN LOCATION SHOWN FOR PIECE OF EQUIPMENT INDICATED. PROVIDE ALL NECESSARY CONDUIT, WIRING, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.
3. PROVIDE RETURN AIR SENSORS IN LOCATION SHOWN FOR ASSOCIATED AHU. PROVIDE ALL NECESSARY CONDUIT, WIRING, RELAYS, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. EXTEND TEMPERATURE SENSOR INTO RETURN AIR DUCT FOR ASSOCIATED UNIT. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.

GENERAL NOTES:

1) RE: SHEET BA001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS BA500 SERIES FOR BAS SCHEMATICS, POINTS LIST AND SEQUENCE OF OPERATIONS.

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DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1
BAS
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SHEET NUMBER:

BA101C

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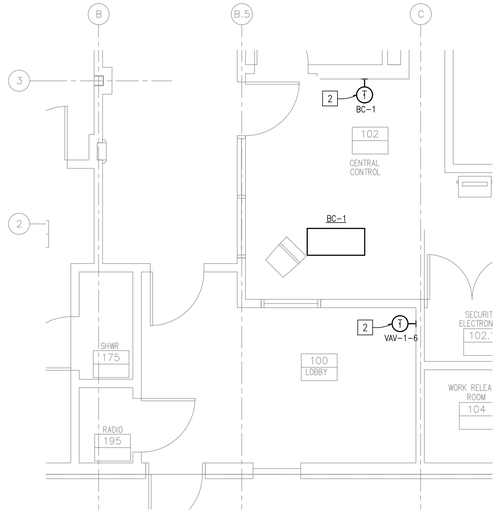
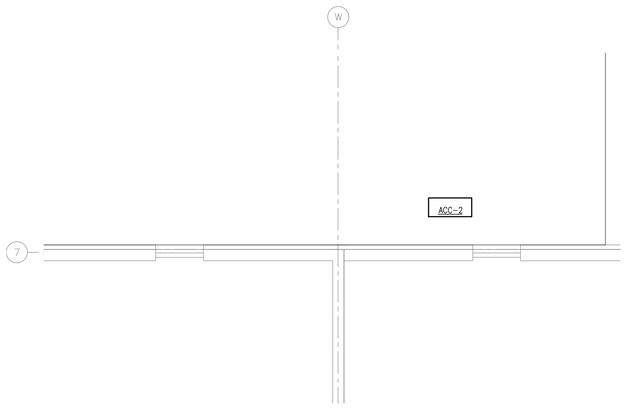
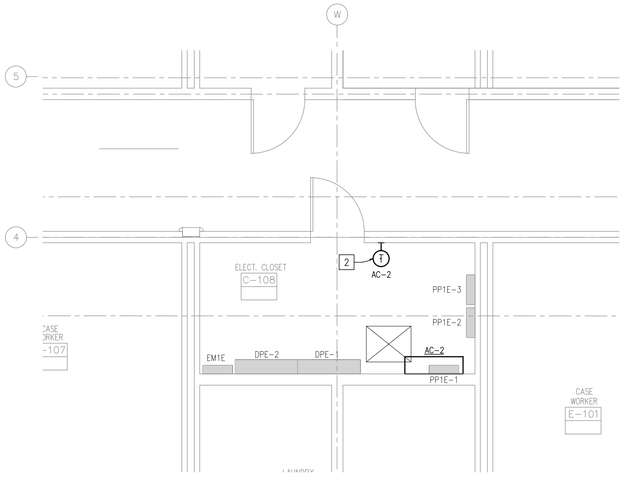
MARCH 21, 2023



1 LEVEL 1 BLDG. AUTOMATION NEW WORK PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 1 BLDG. AUTOMATION NEW WORK PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 1 BLDG. AUTOMATION NEW WORK PLAN
SCALE: 1/4" = 1'-0"

4 LEVEL 1 BLDG. AUTOMATION NEW WORK PLAN
SCALE: 1/4" = 1'-0"

PLAN NOTES:

1. PROVIDE RETURN AIR SENSORS IN LOCATION SHOWN FOR ASSOCIATED AHU. PROVIDE ALL NECESSARY CONDUIT, WIRING, RELAYS, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. EXTEND TEMPERATURE SENSOR INTO RETURN AIR DUCT FOR ASSOCIATED UNIT. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.
2. PROVIDE TEMPERATURE SENSOR IN LOCATION SHOWN FOR PIECE OF EQUIPMENT INDICATED. PROVIDE ALL NECESSARY CONDUIT, WIRING, RELAYS, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.
3. PROVIDE ALL NECESSARY COMMUNICATION WIRING AND CONTROL WIRING PER SCHEMATICS ON BA500 SERIES DRAWINGS FOR A COMPLETE AND OPERABLE SYSTEM.
4. PROVIDE CONTROLS FOR NEW AHU PER SCHEMATICS ON BA500 SERIES DRAWINGS.
5. EQUIPMENT SHOWN ON MEZZANINE LEVEL ABOVE ROOMS BELOW.
6. CONTRACTOR TO RETAIN EXISTING CONTROL PANEL. PROVIDE NEW CONTROL PANEL IN LIEU OF EXISTING PANEL IF UNABLE TO HOUSE CONTROLS FOR A COMPLETE AND OPERABLE SYSTEM.

GENERAL NOTES:
1) RE: SHEET BA001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS BA500 SERIES FOR BAS SCHEMATICS, POINTS LIST AND SEQUENCE OF OPERATIONS.

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DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1
BAS
NEW WORK PLAN

SHEET NUMBER:

BA101D

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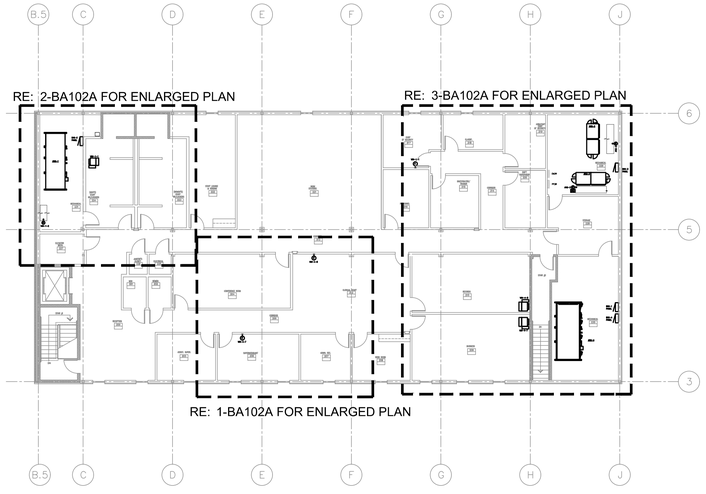
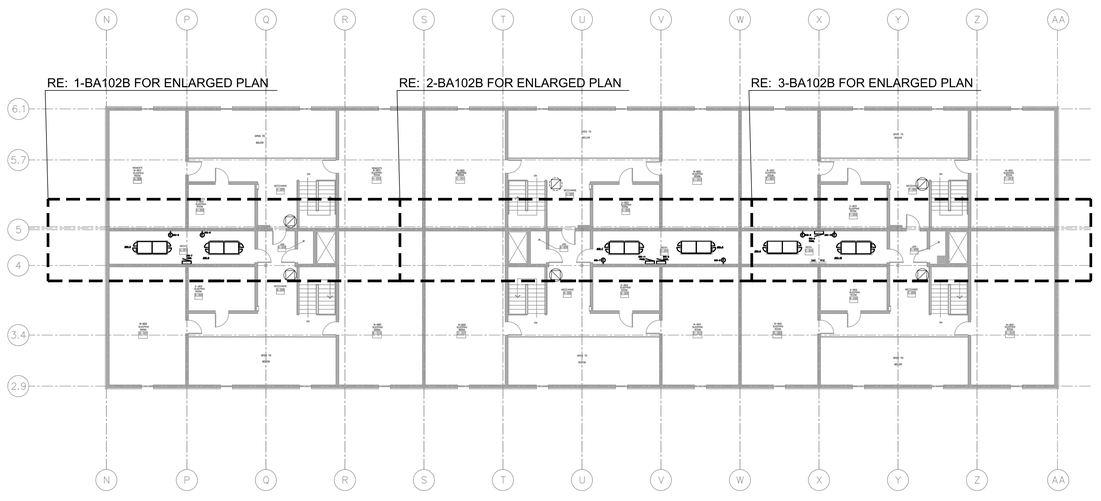
MARCH 21, 2023





1 LEVEL 2 OVERALL BLDG. AUTOMATION NEW WORK PLAN
SCALE: 1/16" = 1'-0"

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CAD DWG FILE:
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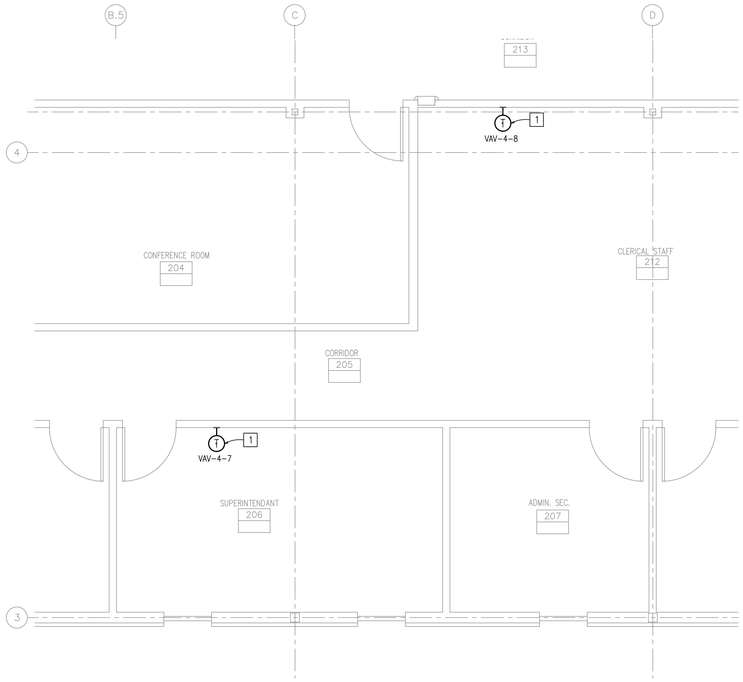
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

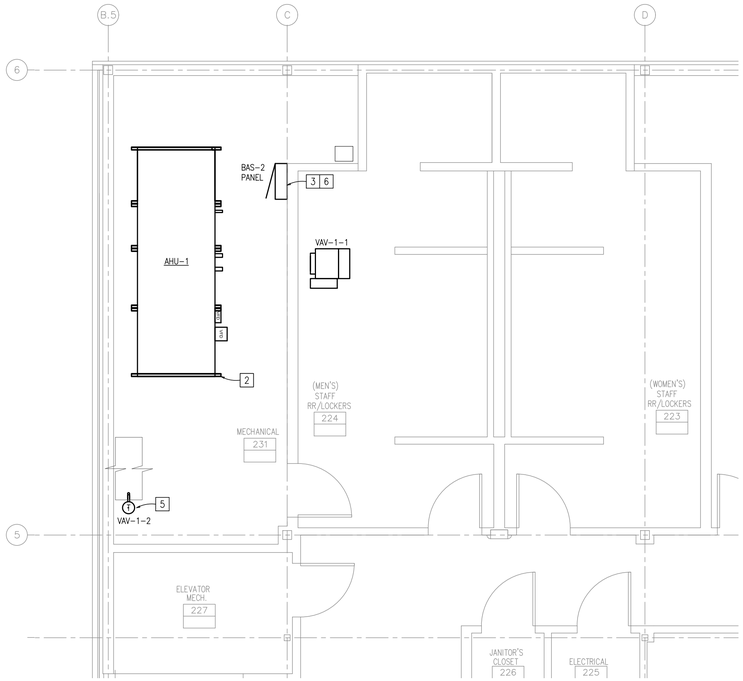
LEVEL 2 OVERALL BAS NEW WORK PLAN

SHEET NUMBER:

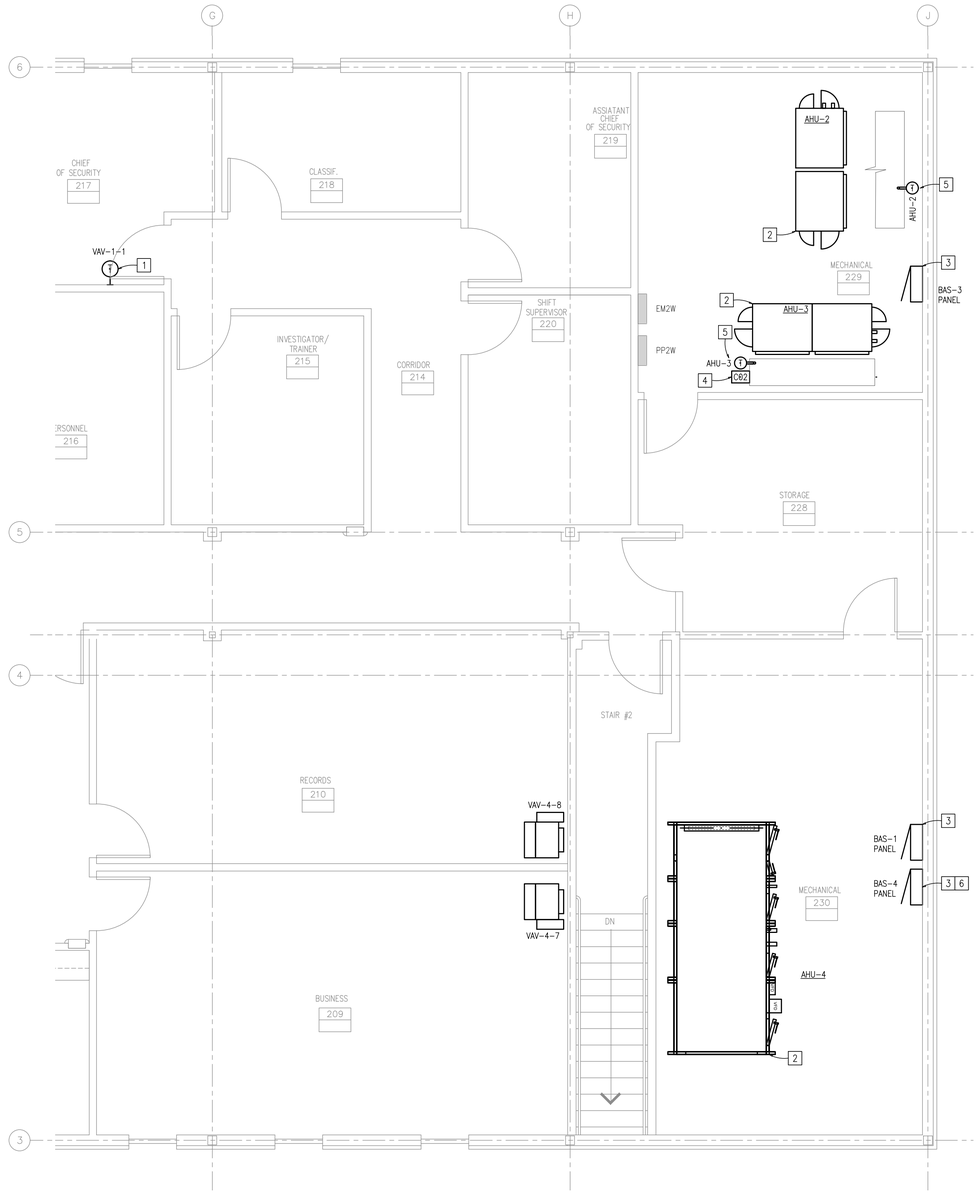
BA102



1 LEVEL 2 BLDG. AUTOMATION NEW WORK PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 2 BLDG. AUTOMATION NEW WORK PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 2 BLDG. AUTOMATION NEW WORK PLAN
SCALE: 1/4" = 1'-0"

PLAN NOTES:

1. PROVIDE TEMPERATURE SENSOR IN LOCATION SHOWN FOR PIECE OF EQUIPMENT INDICATED. PROVIDE ALL NECESSARY CONDUIT, WIRING, RELAYS, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.
2. PROVIDE CONTROLS FOR NEW AHU PER SCHEMATICS ON BA500 SERIES DRAWINGS.
3. PROVIDE NEW BAS PANEL IN APPROXIMATE LOCATION SHOWN WHILE MAINTAINING ALL REQUIRED CLEARANCES. RE: BA500 FOR BAS NETWORK RISER DIAGRAM. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATIC, POINTS LIST AND SEQUENCE OF OPERATION.
4. PROVIDE CO2 SENSOR IN LOCATION SHOWN FOR PIECE OF EQUIPMENT INDICATED. PROVIDE ALL NECESSARY CONDUIT, WIRING, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.
5. PROVIDE RETURN AIR SENSORS IN LOCATION SHOWN FOR ASSOCIATED AHU. PROVIDE ALL NECESSARY CONDUIT, WIRING, RELAYS, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. EXTEND TEMPERATURE SENSOR INTO RETURN AIR DUCT FOR ASSOCIATED UNIT. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.
6. PROVIDE ALL NECESSARY CONTROL WIRING, LOW VOLTAGE WIRING, AND POWER SUPPLIES TO POWER ALL ASSOCIATED VAV BOXES.

GENERAL NOTES:
1) RE: SHEET BA001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS BA500 SERIES FOR BAS SCHEMATICS, POINTS LIST AND SEQUENCE OF OPERATIONS.

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SHEET TITLE:

LEVEL 2
BAS
NEW WORK PLAN

SHEET NUMBER:

BA102A

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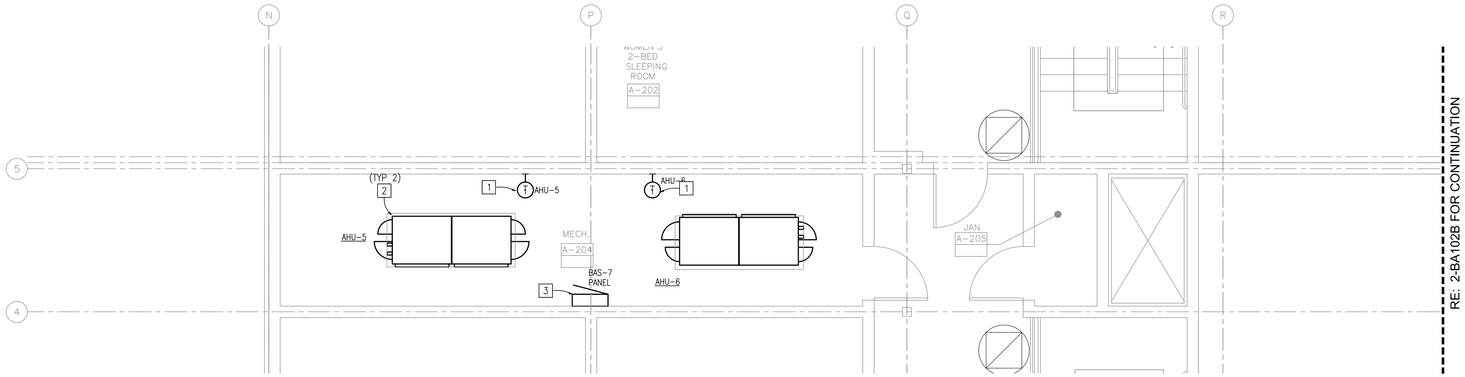
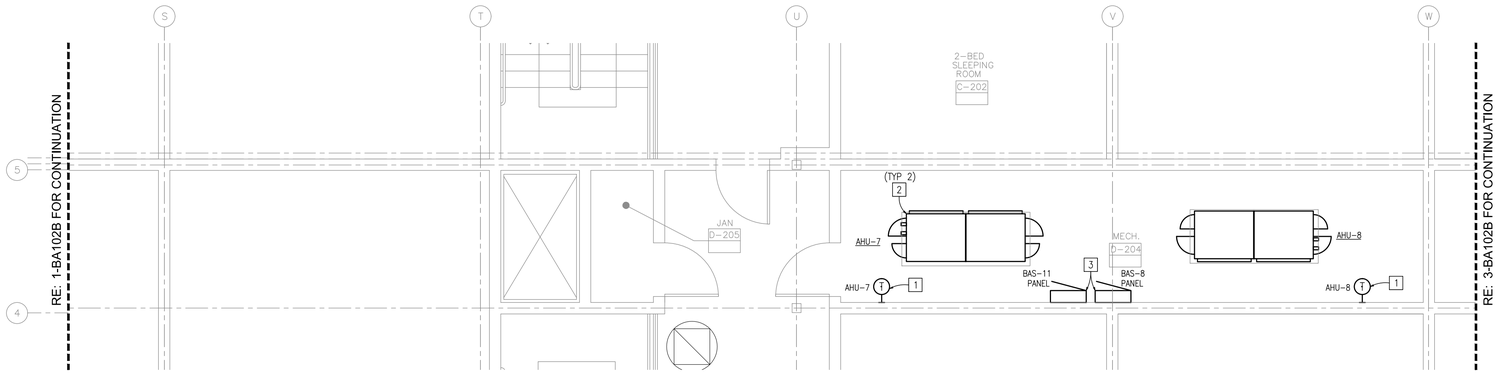
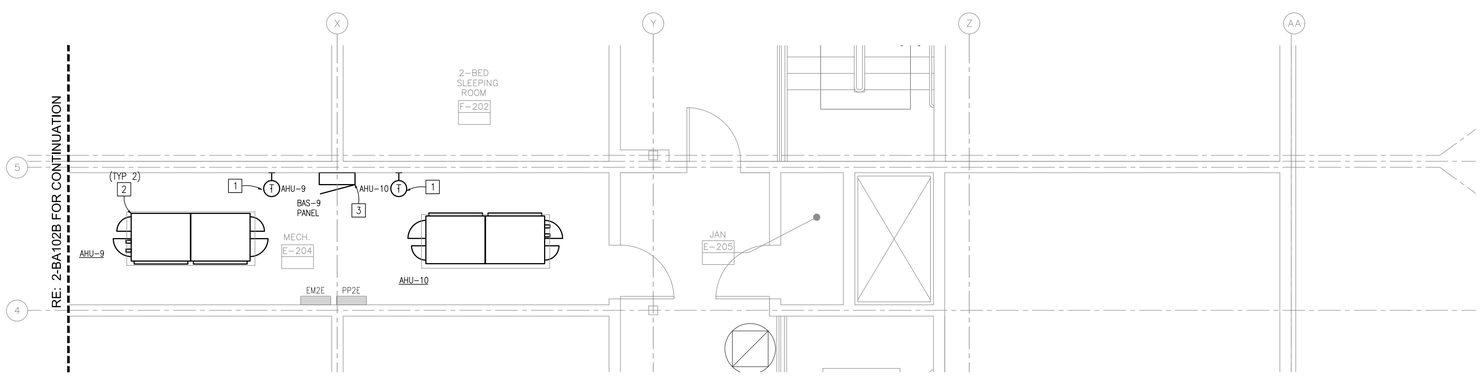
MARCH 21, 2023



1 LEVEL 2 BLDG. AUTOMATION NEW WORK PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 2 BLDG. AUTOMATION NEW WORK PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 2 BLDG. AUTOMATION NEW WORK PLAN
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PLAN NOTES:

1. PROVIDE TEMPERATURE SENSOR IN LOCATION SHOWN FOR PIECE OF EQUIPMENT INDICATED. PROVIDE ALL NECESSARY CONDUIT, WIRING, RELAYS, HARDWARE, ETC. FOR A COMPLETE INSTALLATION. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATICS.
2. PROVIDE CONTROLS FOR NEW AHU PER SCHEMATICS ON BA500 SERIES DRAWINGS.
3. PROVIDE NEW BAS PANEL IN APPROXIMATE LOCATION SHOWN WHILE MAINTAINING ALL REQUIRED CLEARANCES. RE: BA 500 FOR BAS NETWORK RISER DIAGRAM. RE: BA500 SERIES DRAWINGS FOR BAS SCHEMATIC. POINTS LIST AND SEQUENCE OF OPERATION.

GENERAL NOTES:
1) RE: SHEET BA001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS BA500 SERIES FOR BAS SCHEMATICS, POINTS LIST AND SEQUENCE OF OPERATIONS.

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SHEET TITLE:

LEVEL 2
BAS
NEW WORK PLAN

SHEET NUMBER:

BA102B

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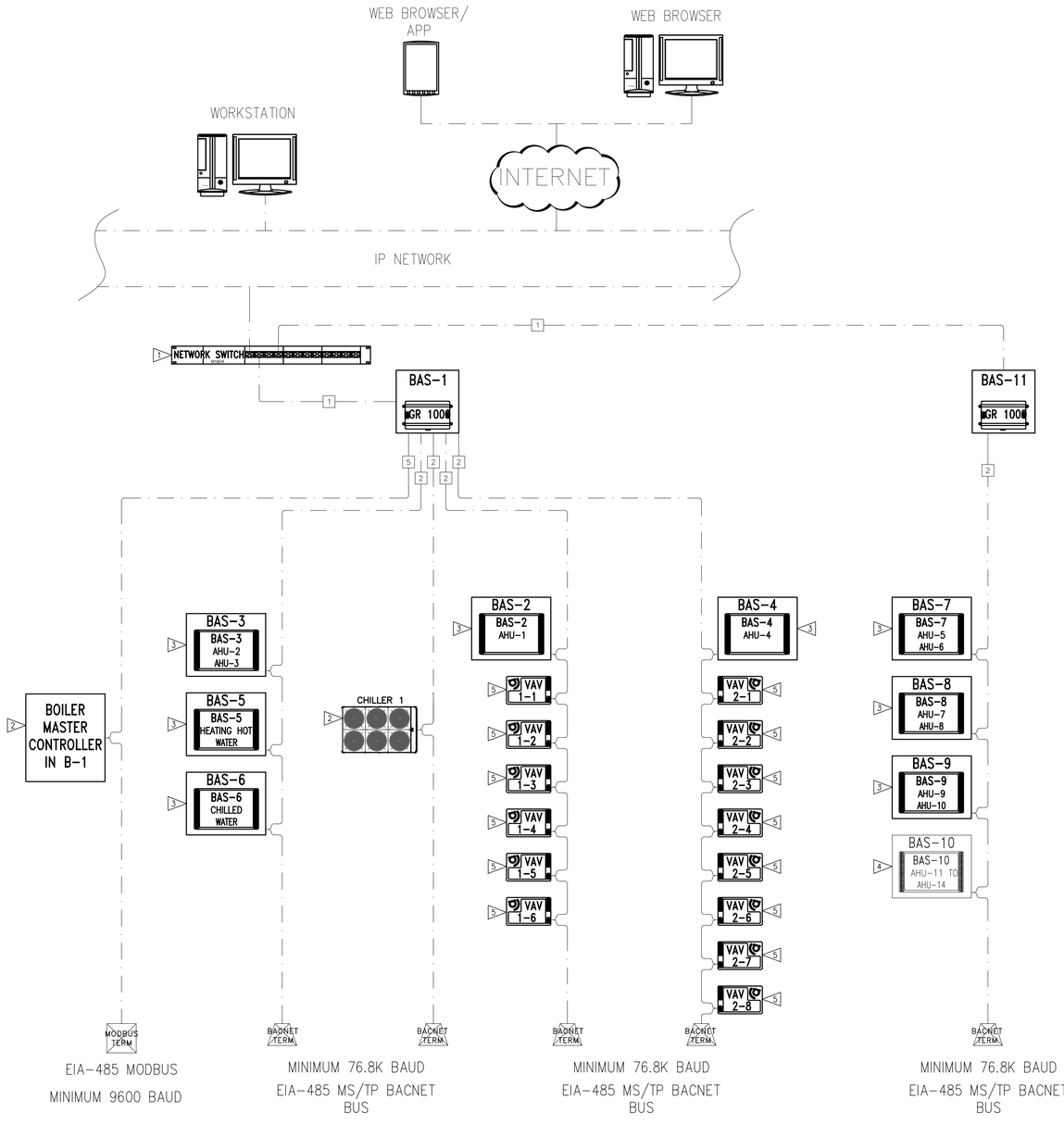
MARCH 21, 2023



GENERAL BAS DESIGN CRITERIA

0.1 GENERAL BAS DESIGN CRITERIA:

A. REFERENCE SHEET BA001 FOR GENERAL NOTES.
B. ALL DEVICES SHALL FAIL TO THE "ON" POSITION (OR FAIL SAFE POSITION IF INDICATED OTHERWISE) IF CONTROLLER FAILS OR LOSSES POWER. ALL HOT WATER HEATING COILS SHALL FAIL "CLOSED". ALL CHILLED WATER VALVES SHALL FAIL OPEN. AN ALARM SHALL BE GENERATED UPON FAILURE OF CONTROLLER.
C. ALL ALARMS SHALL BE WIRED TO NORMALLY OPEN CONTACTS SO THAT DISCONNECTED OR CUT WIRES GENERATE AN ALARM.
D. ALL SAFETIES SHALL BE PROVIDED WITH AUTOMATIC RESET FUNCTION (NO MANUAL RESETS).
E. ALL UNITS, DEVICES, ETC. SERVING LIVING SPACES (HOUSING, CELLS, ETC.) SHALL BE CAPABLE OF BEING MANUALLY OPERATED UPON FAILURE OF BAS, UNLESS SHUT DOWN ON SAFETIES. BAS CONTRACTOR SHALL PROVIDE WRITTEN MANUAL OPERATING PROCEDURES FOR EACH SYSTEM.
F. DRIVE STARTUP: COORDINATE INTERNAL DRIVE SETTINGS WITH DRIVE STARTUP PERSONNEL. SETPOINTS PROVIDED BELOW SHALL BE UTILIZED UNTIL COORDINATION OCCURS. SET DECELERATION AND ACCELERATION TIMING TO 30 SECONDS (ADJ.). SET FREQUENCY TO 45HZ BY DEFAULT.

FLAG NOTES

1. EXISTING OWNER IP NETWORK SWITCH. COORDINATE EXACT LOCATION OF NETWORK TIE IN WITH OWNER.
2. PROVIDE ALL NECESSARY COMMUNICATION CABLE AND CONDUIT TO ALLOW FOR INTEGRATION TO NEW EQUIPMENT.
3. PROVIDE NEW NEMA 1 BAS PANEL AND ALL ASSOCIATED CONTROLLERS, POWER SUPPLIES, TERMINAL STRIPS, ETC. FOR A COMPLETE INSTALLATION PER SCHEMATICS, POINTS LISTS, AND SEQUENCE OF OPERATIONS ON BA500 SERIES DRAWINGS.
4. EXISTING BAS PANEL TO HOUSE ALL NEW ASSOCIATED CONTROLLERS, POWER SUPPLIES, TERMINAL STRIPS, ETC. FOR A COMPLETE INSTALLATION PER SCHEMATICS, POINTS LISTS, AND SEQUENCE OF OPERATIONS ON BA500 SERIES DRAWINGS. IF EXISTING PANEL SPACE IS NOT ADEQUATE PROVIDE ADDITIONAL PANEL AND/OR REPLACE EXISTING PANEL WITH LARGER PANEL TO ALLOW FOR ALL COMPONENTS. CONTRACTOR SHALL FIELD VERIFY EXISTING PANEL SIZE.
5. CONTROL VOLTAGE (24VAC/24VDC PER CONTROLS CONTRACTOR PREFERENCE) SHALL BE SOURCED FROM ASSOCIATED AHU BAS CABINET. CONTRACTOR SHALL PROVIDE PROVIDE ADEQUATELY SIZED TRANSFORMER WITHIN AHU BAS CABINET AND ROUTE 24VAC/24VDC POWER SUPPLY TO EACH VAV BOX IN SHARED CONDUIT WITH COMMUNICATION WIRING.

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DESIGNED BY: MRB

SHEET TITLE:

BAS NETWORK RISER DIAGRAM

SHEET NUMBER:

BA500

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MARCH 21, 2023

VAV SEQUENCE OF OPERATION

A. RUN CONDITIONS – SCHEDULED: THE UNIT SHALL RUN BASED UPON AN OPERATOR ADJUSTABLE SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF OPERATING 24 HOURS PER DAY, 7 DAYS PER WEEK. PROGRAMMING SHALL BE PROVIDED TO ALLOW THE OWNER TO SELECT A DIFFERENT OCCUPIED SCHEDULE FOR EACH DAY OF THE WEEK FOR EACH VAV OR GROUP OF VAVS. INITIALLY SET THE OCCUPIED SCHEDULE TO 24X7 FOR ALL BOXES.
   1. OCCUPIED MODE: THE UNIT SHALL MAINTAIN
      a. 75degF (ADJ.) COOLING SETPOINT
      b. 70degF (ADJ.) HEATING SETPOINT.
   2. UNOCCUPIED MODE: THE UNIT SHALL MAINTAIN
      a. 85degF (ADJ.) COOLING SETPOINT
      b. 60degF (ADJ.) HEATING SETPOINT.

B. ALARMS SHALL BE PROVIDED AS FOLLOWS:
   1. HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY 10degF (ADJ.).
   2. LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY 10degF (ADJ.).

C. ZONE OPTIMAL START: THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START–UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM–UP OR COOL–DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD.

D. ZONE UNOCCUPIED OVERRIDE: A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.

E. SPACE TEMPERATURE LOCAL ADJUSTMENT: THE OCCUPANT SHALL BE ABLE TO OFFSET THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS LOCALLY AT THE TEMPERATURE SENSOR. THESE ADJUSTMENTS SHALL HAVE AN ADJUSTMENT BAND LIMITED TO +/– 2degF (ADJ.).

F. VARIABLE VOLUME TERMINAL UNIT – FLOW CONTROL: THE UNIT SHALL MAINTAIN ZONE SETPOINTS BY CONTROLLING THE AIRFLOW THROUGH ONE OF THE FOLLOWING:
   1. WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW (ADJ.) AND THE MAXIMUM COOLING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.
   2. WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND THE HEATING SETPOINT, THE ZONE DAMPER SHALL MAINTAIN THE MINIMUM REQUIRED ZONE VENTILATION (ADJ.).
   3. WHEN ZONE TEMPERATURE IS LESS THAN ITS HEATING SETPOINT, THE ZONE DAMPER SHALL MAINTAIN THE HEATING CFM .
   4. DURING UNOCCUPIED MODE THE VAV DAMPERS SHALL CLOSE. DURING TIMED LOCAL OVERRIDE, NIGHT SETBACK, AND NIGHT SETUP MODES THE ACTIVE BOXES SHALL CONTROL AS DESCRIBED ABOVE. THE STANDBY VAV BOXES SHALL OPEN INCREMENTALLY TO MAINTAIN THE MINIMUM SUPPLY AIRFLOW OF THE UNIT.

H. REHEATING COIL (VAVS WITH REHEAT ONLY): THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE MODULATE THE CONTROL VALVE ON DROPPING TEMPERATURE TO MAINTAIN ITS HEATING SETPOINT.

I. DISCHARGE AIR TEMPERATURE: THE CONTROLLER SHALL MONITOR THE DISCHARGE AIR TEMPERATURE. ALARMS SHALL BE PROVIDED AS FOLLOWS:
   1. HIGH DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 120degF (ADJ.).
   2. LOW DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40degF (ADJ.).

J. CONTROLLER LOSS OF COMMUNICATIONS: THE BAS SHALL ALLOW NORMAL CONTROL FOR AIRFLOW AND HEATING ANYTIME THE STATIC PRESSURE OF THE AHU IS ABOVE 0.25" (ADJ). THE BAS SHALL INCLUDE A DEFAULT VALUE OF 0.3" UPON A LOSS OF COMM TO THE AHU. THE BAS SHALL MONITOR COMMUNICATION TO THE CONTROLLER AND UPON LOSING COMMUNICATION TO THE CONTROLLER THE BAS SHALL GENERATE A LOSS OF COMMUNICATION ALARM.

I. CO2 CONTROL: FOR ZONES WITH ZONE CO2 SENSORS, THE MINIMUM AIRFLOW SETPOINT SHALL BE RESET BETWEEN THE DCV MINIMUM AND DESIGN MINIMUM AS LISTED IN THE VAV BOX SCHEDULE BASED ON THE ZONE CO2 VALUE BETWEEN 600PPM (ADJ.) AND 1000PPM (ADJ.). ALARMS SHALL BE PROVIDED AS FOLLOWS:
   1. HIGH ZONE CO2: IF THE ZONE CO2 IS GREATER THAN 1200PPM (ADJ.) FOR 30MIN (ADJ.).

X KEY NOTES

1 REMOTE MOUNTED SENSORS/DEVICES. RE: BA100 SERIES DRAWINGS FOR LOCATIONS OF SENSORS/DEVICES.

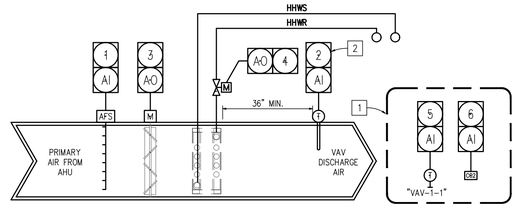
2 INSTALL DISCHARGE AIR TEMPERATURE SENSOR A MIN. 3'–0" DOWNSTREAM OF HEATING COIL. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR.

DDC POINTS LIST SUMMARY - "VAV WITH REHEAT"

#	CONTROL POINTS	DDC HARD WIRED POINTS: DIGITAL INPUTS	DIGITAL OUTPUTS	ANALOG INPUTS	ANALOG OUTPUTS	INTERFACE: READ DATA POINT	READ/WRITE DATA POINT	GUI APPLICATION: TREND LOGGING	RUN TIME ACCUMULATION	OPERATION SCHEDULE	SCREEN DISPLAYED	USER OVERRIDE	ALARMING SCENARIOS: OUT OF RANGE	POINT STATUS	COMMAND FAILURE	CALCULATED EVENT	ALARM PRIORITIES: NOTIFICATION	MAINTENANCE	MAJOR	CRITICAL	SUPPLEMENTARY NOTES
1	VAV AIRFLOW			X				X			X		X			X		X			
2	VAV DISCHARGE AIR TEMPERATURE			X				X			X		X			X		X			
3	VAV PRIMARY AIR DAMPER COMMAND				X			X			X	X			X			X			
4	VAV HOT WATER CONTROL VALVE				X			X	X		X	X			X			X			
5	VAV ZONE TEMPERATURE			X				X			X	X	X			X		X			
6	VAV ZONE CARBON DIOXIDE			X				X			X		X			X		X			

#	EQUIPMENT CONTROLLED / MONITORED
1	ALL VAVS EXCLUDING VAV 1–4, 1–5, 4–1 & 4–6.
2	
3	

NOTES:
1) ALL VAVS SHALL BE PROVIDED WITH INDIVIDUAL DDC CONTROLLERS.
2) PROVIDE ALL NECESSARY COMMUNICATION WIRING AND PROGRAMMING BETWEEN THE DDC, VAV BOX CONTROLLER, AND ASSOCIATED AHU CONTROLLERS TO ALLOW FOR PROPER OPERATIONS.



1 VAV BOX WITH HEATING HOT WATER CONTROL SCHEMATIC

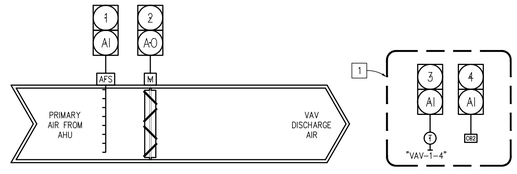
NO SCALE

DDC POINTS LIST SUMMARY - "VAV WITHOUT REHEAT"

#	CONTROL POINTS	DDC HARD WIRED POINTS: DIGITAL INPUTS	DIGITAL OUTPUTS	ANALOG INPUTS	ANALOG OUTPUTS	INTERFACE: READ DATA POINT	READ/WRITE DATA POINT	GUI APPLICATION: TREND LOGGING	RUN TIME ACCUMULATION	OPERATION SCHEDULE	SCREEN DISPLAYED	USER OVERRIDE	ALARMING SCENARIOS: OUT OF RANGE	POINT STATUS	COMMAND FAILURE	CALCULATED EVENT	ALARM PRIORITIES: NOTIFICATION	MAINTENANCE	MAJOR	CRITICAL	SUPPLEMENTARY NOTES
1	VAV AIRFLOW			X				X			X		X			X		X			
2	VAV PRIMARY AIR DAMPER COMMAND				X			X			X	X			X			X			
3	VAV ZONE TEMPERATURE			X				X			X	X	X			X		X			
4	VAV ZONE CARBON DIOXIDE			X				X			X		X			X		X			

#	EQUIPMENT CONTROLLED / MONITORED
1	VAV 1–4, 1–5, 4–1 & 4–6.
2	
3	

NOTES:
1) ALL VAVS SHALL BE PROVIDED WITH INDIVIDUAL DDC CONTROLLERS.
2) PROVIDE ALL NECESSARY COMMUNICATION WIRING AND PROGRAMMING BETWEEN THE DDC, VAV BOX CONTROLLER, AND ASSOCIATED AHU CONTROLLERS TO ALLOW FOR PROPER OPERATIONS.



2 VAV BOX WITHOUT REHEAT CONTROL SCHEMATIC

NO SCALE

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
NUMBER PE-2003016693
PROFESSIONAL ENGINEER
3-21-2023

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

BAS
VAV SCHEMATIC AND SCHEDULE

SHEET NUMBER:

BA501

75 OF 111 SHEETS
MARCH 21, 2023

SEQUENCE OF OPERATION (AHU-1 & AHU-4)

A. GENERAL: THE AHU IS A VARIABLE AIR VOLUME TYPE AIR HANDLER WITH CHILLED WATER COOLING AND HEATING HOT WATER. THE AHU INCLUDES A SUPPLY FAN WITH VFD, HOT AND COLD WATER COILS, AND A MIXING BOX. (HOT WATER REHEAT IS PROVIDED AT THE TERMINAL BOXES).

B. RUN CONDITIONS – SCHEDULED: THE UNIT SHALL RUN BASED UPON AN OPERATOR ADJUSTABLE SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF OPERATING 24 HOURS PER DAY, 7 DAYS PER WEEK. PROGRAMMING SHALL BE PROVIDED TO ALLOW THE OWNER TO SELECT A DIFFERENT OCCUPIED SCHEDULE FOR EACH DAY OF THE WEEK.
1. OCCUPIED MODE: INITIALLY SET THE OCCUPIED SCHEDULE TO 24X7. DURING OCCUPIED MODE THE SUPPLY FAN(S) SHALL RUN CONTINUOUSLY AND OUTSIDE AIR DAMPER SHALL MODULATE OPEN TO MAINTAIN THE MINIMUM OA CFM.
2. UNOCCUPIED MODE: INITIALLY SET THE UNOCCUPIED SCHEDULE TO NONE. DURING UNOCCUPIED MODE THE FAN(S) SHALL BE OFF AND OUTSIDE AIR DAMPER SHALL BE CLOSED AND COOLING SHALL BE DISABLED.
3. NIGHT SETUP: WHEN 2 (ADJ.) OR MORE ZONES ARE ABOVE THE UNOCCUPIED COOLING SETPOINT (WITH A 5degF HYSTERESIS). THE SUPPLY FAN SHALL BE ENABLED. THE SUPPLY DUCT STATIC PRESSURE AND COOLING CONTROL LOOPS SHALL BE ENABLED, OUTSIDE AIR DAMPER SHALL REMAIN CLOSED, AND ALL VAV BOXES SERVICED BY THE AHU SHALL OPEN TO AT LEAST MINIMUM POSITION.
4. NIGHT SETBACK: WHEN 2 (ADJ.) OR MORE ZONES ARE BELOW THE UNOCCUPIED HEATING SETPOINT (WITH A 5degF HYSTERESIS). THE SUPPLY FAN SHALL BE ENABLED. THE SUPPLY DUCT STATIC PRESSURE CONTROL LOOP SHALL BE ENABLED, OUTSIDE AIR DAMPER SHALL REMAIN CLOSED, AND ALL VAV BOXES SERVICED BY THE AHU SHALL OPEN TO AT LEAST MINIMUM POSITION.
5. AHU OPTIMAL START: THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START-UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD. MINIMUM OUTSIDE AIR SEQUENCE SHALL BE DISABLED.

C. PROOFS AND SAFETIES: THE SUPPLY FAN(S) AND ALL ASSOCIATED BAS HARDWARE CONTROL LOOPS SHALL BE SUBJECT TO PROOFS AND SAFETIES. BAS HARDWARE SHALL MONITOR ALL PROOFS AND SAFETIES AND FAILURE OF ANY PROOF OR ACTIVATION OF ANY SAFETY SHALL RESULT IN ALL CONTROL LOOPS BEING DISABLED AND THE AHU FAN BEING COMMANDED OFF UNTIL RESET.
1. SHUTDOWN SEQUENCE: THE FOLLOWING SHALL OCCUR WHEN THE UNIT IS SHUTDOWN:
   a. SUPPLY FAN VFD SHALL RAMP DOWN TO 0% AND THEN THE FAN SHALL BE DISABLED
   b. DISABLE COOLING AND PREHEAT.
   c. OUTSIDE AIR DAMPER SHALL CLOSE.
2. SAFETIES:
   a. FIRE ALARM SYSTEM SHUTDOWN: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A FIRE ALARM SIGNAL FROM THE FIRE ALARM SYSTEM.
   b. HIGH DISCHARGE STATIC: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A HIGH STATIC SHUTDOWN SIGNAL. HIGH DUCT STATIC SWITCHES SHALL BE HARDWIRED TO STOP THE FANS WHEN STATIC IS OVER 3.5" W.C.
   c. FREEZE-STAT: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A TEMPERATURE SENSOR LOW-LIMIT ALARM. FREEZE-STAT SHALL BE HARDWIRED TO STOP VFDS WHEN UNIT MOUNTED FREEZE-STAT IS BELOW 35degF (ADJ.).
3. PROOFS:
   a. FAN FAIL TO INDICATE STATUS: THE UNIT SHALL DISABLE ALL CONTROL LOOPS AND GENERATE A SUPPLY FAN "X" ALARM IF THE UNIT HAS BEEN COMMANDED ON AND STATUS IS NOT INDICATED AFTER A 1 MIN. (ADJ.) DELAY.

D. VFD CONTROL: THE SUPPLY FAN VARIABLE FREQUENCY DRIVE (VFD) SHALL HAVE AN INTEGRAL H-O-A SWITCH:
1. HAND POSITION: WITH THE H-O-A SWITCH IN HAND POSITION, THE SUPPLY FAN SHALL START AND RUN CONTINUOUSLY, SUBJECT TO SAFETIES. FAN SPEED SHALL BE UNDER MANUAL-OPERATOR CONTROL.
2. OFF POSITION: WITH THE H-O-A SWITCH IN OFF POSITION, THE SUPPLY FAN SHALL STOP.
3. AUTO POSITION: WITH THE H-O-A SWITCH IN AUTO POSITION, THE SUPPLY FAN SHALL RUN SUBJECT TO THE SUPPLY FAN START/STOP SIGNAL AND SAFETIES. FAN SPEED SHALL BE UNDER CONTROL OF THE BAS.

E. SUPPLY FAN: THE SUPPLY FAN VFD SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN. THE FAN VFD SHALL RUN FOR A MINIMUM OF 1 MIN (ADJ.) UNLESS SHUTDOWN ON SAFETIES. THE CONTROLLER SHALL MEASURE THE DUCT STATIC PRESSURE AND MODULATE THE SUPPLY FAN VFD SPEED TO MAINTAIN THE DUCT STATIC PRESSURE SETPOINT.
ALARMS SHALL BE PROVIDED AS FOLLOWS:
1. SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF. STATUS SHALL BE MONITORED VIA ANALOG CT AND LOSS OF STATUS SHALL BE COMPARED TO ADJUSTABLE LOW LIMIT SETTING SET BY CONTROLS CONTRACTOR TO BE JUST BELOW MINIMUM AMPS DURING MINIMUM SPEED OF OPERATION.
2. SUPPLY FAN MANUAL OVERRIDE: COMMANDED OFF, BUT THE STATUS IS ON.
3. SUPPLY FAN VFD COMMON ALARM (FAULT).
4. HIGH DUCT STATIC PRESSURE: IF THE AVERAGE DUCT STATIC PRESSURE IS 0.4" WC (ADJ.) GREATER THAN SETPOINT FOR 10 MIN. (ADJ.).
5. LOW DUCT STATIC PRESSURE: IF THE AVERAGE DUCT STATIC PRESSURE IS 0.4" WC (ADJ.) LESS THAN SETPOINT FOR 10 MIN. (ADJ.).

F. STATIC PRESSURE RESET SCHEDULE:
1. REQUEST OPTIMIZATION: THE CONTROLLER SHALL UTILIZE THE VAV BOX CONTROLLER LOGIC TO MONITOR THE DAMPER POSITION OF EACH VAV BOX SERVED BY THE UNIT. A REQUEST FOR STATIC PRESSURE SHALL BE GENERATED WHEN THE VAV BOX DAMPER IS OPEN 90% (ADJ.) OR MORE. THE REQUESTS SHALL BE PROGRAMMED SO THAT EACH BOX HAS A WEIGHTED VALUE OF REQUESTS. INITIALLY ALL BOXES SHALL BE WEIGHTED WITH ONE REQUEST.
2. TRIM & RESPOND: STATIC PRESSURE SETPOINT SHALL BE RESET USING TRIM & RESPOND LOGIC WITHIN THE RANGE OF 0.5 IN. W.G. (ADJ.) TO 1.5 IN. W.G. (ADJ.). WHEN THE FAN IS OFF, THE SETPOINT SHALL BE 1.0 IN. W.G. (ADJ.). WHILE THE FAN IS PROVEN ON, EVERY 2 MIN. (ADJ.), TRIM THE SETPOINT BY 0.04 IN. W.G. (ADJ.). RESPOND BY INCREASING THE SETPOINT BY 0.02 IN. W.G. TIMES THE NUMBER OF PRESSURE REQUESTS. LIMIT THE MAXIMUM RESPONSE PER INTERVAL TO 0.1 IN. W.C. (ADJ.).

G. CHILLED WATER COOLING CONTROL: THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND MODULATE THE CHILLED WATER CONTROL VALVE TO MAINTAIN ITS COOLING SETPOINT.

1. LOW LIMIT TRIP: UPON A LOW LIMIT TEMPERATURE TRIP, THE CHILLED WATER VALVES SHALL BE COMMANDED TO 50% (ADJ.) AND THE LEAD CHILLED WATER PUMP SHALL BE ENABLED TO FLOW THROUGH THE COIL.

H. PREHEAT COIL CONTROL: THE CONTROLLER SHALL MEASURE THE LEAVING PREHEAT COIL TEMPERATURE AND MODULATE THE FLOW TO THE HEATING COIL TO MAINTAIN A PREHEAT SETPOINT OF 3deg(ADJ.) BELOW THE CALCULATED UNIT SA-T-SP. THE BAS SHALL NOT ALLOW THE PREHEAT AND COOLING TO OPERATE SIMULTANEOUSLY UNLESS THE COOLING COIL OPENED FOR LOW TEMP FREEZE PROTECTION.

I. SUPPLY AIR TEMPERATURE RESET SCHEDULE: THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND RESET THE SUPPLY AIR TEMPERATURE UTILIZING REQUEST OPTIMIZATION.
1. REQUEST OPTIMIZATION: THE CONTROLLER SHALL UTILIZE THE VAV BOX CONTROLLER LOGIC AND GENERATE A REQUEST FOR COOLING ANYTIME THE VAV LOGIC INDICATES A COMMAND FOR COOLING GREATER THAN 80% (ADJ.). THE REQUESTS SHALL BE PROGRAMMED SO THAT EACH BOX HAS A WEIGHTED VALUE OF REQUESTS. INITIALLY ALL BOXES SHALL BE WEIGHTED WITH ONE REQUEST. THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET USING TRIM & RESPOND LOGIC WITHIN THE RANGE OF 55degF (ADJ.) TO 65degF (ADJ.). WHEN THE FAN IS OFF, THE SETPOINT SHALL BE 55degF (ADJ.). WHILE THE FAN IS PROVEN ON, EVERY 10 MIN. (ADJ.) TRIM THE CURRENT SETPOINT UP 0.5degF (ADJ.). RESPOND BY DECREASING THE SETPOINT BY 1degF (ADJ.) FOR EACH REQUEST. LIMIT THE MAXIMUM RESPONSE PER INTERVAL TO 2degF (ADJ.).
2. HIGH RELATIVE HUMIDITY MODE: UPON A RETURN AIR HUMIDITY ABOVE 60% (ADJ.) THE CONTROLLER SHALL RESET THE SUPPLY AIR TEMPERATURE SETPOINT TO 55degF (ADJ.). WHEN THE RETURN AIR HUMIDITY FALLS BELOW 55% (5% HYSTERESIS), THE UNIT SHALL RESET THE SUPPLY AIR TEMPERATURE AS LISTED ABOVE.

J. MINIMUM OUTSIDE AIR CONTROL: THE OUTSIDE AIR DAMPER SHALL MODULATE TO MAINTAIN THE OUTSIDE AIRFLOW SETPOINT. THE DAMPER POSITION SHALL INCLUDE TWO SEPARATE LINEAR RESETS WITH MIXED AIR TEMPERATURE CONTROL ACTING AS A HIGH LIMIT. FINAL FAN SPEED SETTINGS AND DAMPER POSITIONS SHALL BE ESTABLISHED DURING TAB TO ACHIEVE MINIMUM OA DURING ALL OPERATING SPEEDS. INITIALLY SET THE RESET AS FOLLOWS:
1. OA DAMPER POSITION 30% (ADJ.) – ASSOCIATED FAN SPEED 100% (ADJ)
2. OA DAMPER POSITION 40% (ADJ.) – ASSOCIATED FAN SPEED 65% (ADJ)
3. OA DAMPER POSITION 50% (ADJ.) – ASSOCIATED FAN SPEED 30% (ADJ)
4. MIXED AIR TEMPERATURE LOW LIMIT: MODULATE OA DAMPER CLOSED TO MAINTAIN A MINIMUM OF 55degF (ADJ) LEAVING MIXED AIR TEMPERATURE.

K. MINIMUM SUPPLY AIRFLOW CONTROL: THE CONTROLLER SHALL UTILIZE THE VAV BOXES LOGIC AND PROVIDE A TOTAL SUPPLY AIRFLOW BASED ON THE SUM OF ALL THE VAV BOXES SERVED BY THE UNIT. THE VAV BOXES SHALL OPEN INCREMENTALLY TO MAINTAIN THE MINIMUM SUPPLY AIRFLOW OF 30% (ADJ.) OF THE DESIGN MAXIMUM OF THE UNIT DURING ALL MODES OF OPERATION.

L. FILTER DIFFERENTIAL PRESSURE: THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS FILTER AND GENERATE A FILTER CHANGE REQUIRED ALARM WHEN THE FILTER DIFFERENTIAL PRESSURE EXCEEDS 0.7" (ADJ.).

M. ALARMS: ALARMS SHALL BE PROVIDED AS FOLLOWS:
1. SUPPLY FAN COMMON ALARM: THE BAS SHALL MONITOR THE COMMON ALARM CONTACTS ON THE EC FAN MASTER CONTROLLER BOARD AND GENERATE A FAN COMMON ALARM.
2. HIGH SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS 10degF (ADJ) GREATER THAN SETPOINT FOR 10 MIN. (ADJ.).
3. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS 10degF (ADJ.) LESS THAN SETPOINT FOR 10 MIN. (ADJ.).
4. LOW LEAVING PREHEAT AIR TEMPERATURE: IF THE LEAVING PREHEAT AIR TEMPERATURE IS LESS THAN 45degF (ADJ.) FOR 10 MIN. (ADJ.). ALLOW THE LOW LEAVING PREHEAT AIR TEMPERATURE ALARM, ONLY WHEN THE UNIT IS RUNNING.

N. LOW LEAVING PREHEAT AIR TEMP FREEZE PROTECTION: IF THE LEAVING PREHEAT TEMPERATURE DROPS BELOW 45 DEG (ADJ), OPEN THE CHILLED WATER VALVE 10% (ADJ). THIS SHALL OCCUR ON RUNNING AND NON-RUNNING UNITS.

O. CONTROLLER LOSS OF COMMUNICATIONS: IF AN AHU CONTROLLER LOSES COMMUNICATION TO THE BAS, THE AHU SHALL BE ENABLED BY ITS LOCAL CONTROLLER AND OPERATE PER LOCAL CONTROL. THE BAS SHALL MONITOR COMMUNICATION TO THE CONTROLLER AND UPON LOSING COMMUNICATION TO THE CONTROLLER THE BAS SHALL GENERATE A LOSS OF COMMUNICATION ALARM.

P. CHILLER PLANT CHWS-T REQUEST OPTIMIZATION: GENERATE A CHILLED WATER SYSTEM COOLING REQUEST ANYTIME THE COOLING VALVE IS OPENED MORE THAN 90% (ADJ.)

Q. CO2 CONTROL: FOR ZONES WITH ZONE CO2 SENSORS, THE MINIMUM AIRFLOW SETPOINT SHALL BE RESET BETWEEN THE DCV MINIMUM AND DESIGN MINIMUM AS LISTED IN THE VAV BOX SCHEDULE BASED ON THE ZONE CO2 VALUE BETWEEN 600PPM (ADJ.) AND 1000PPM (ADJ.). ALARMS SHALL BE PROVIDED AS FOLLOWS:
   a. HIGH ZONE CO2: IF THE ZONE CO2 IS GREATER THAN 1200PPM (ADJ.) FOR 60MIN (ADJ.).

[X] KEY NOTES

[1] PROVIDE DOUBLE-POLE DOUBLE-THROW STATIC PRESSURE HIGH LIMIT SWITCH. HIGH LIMIT SWITCH SHALL BE HARD-WIRED TO FAN SAFETY CIRCUIT AND TO CONTROLLER FOR ALARMING.

[2] THE SUPPLY FAN(S) AND ALL ASSOCIATED BAS HARDWARE CONTROL LOOPS SHALL BE SUBJECT TO PROOFS AND SAFETIES. SAFETIES SHALL BE DIRECT-HARDWIRE INTERLOCKS TO EACH VFD. RE: SEQUENCE OF OPERATIONS FOR REQUIRED PROOFS AND SAFETIES.

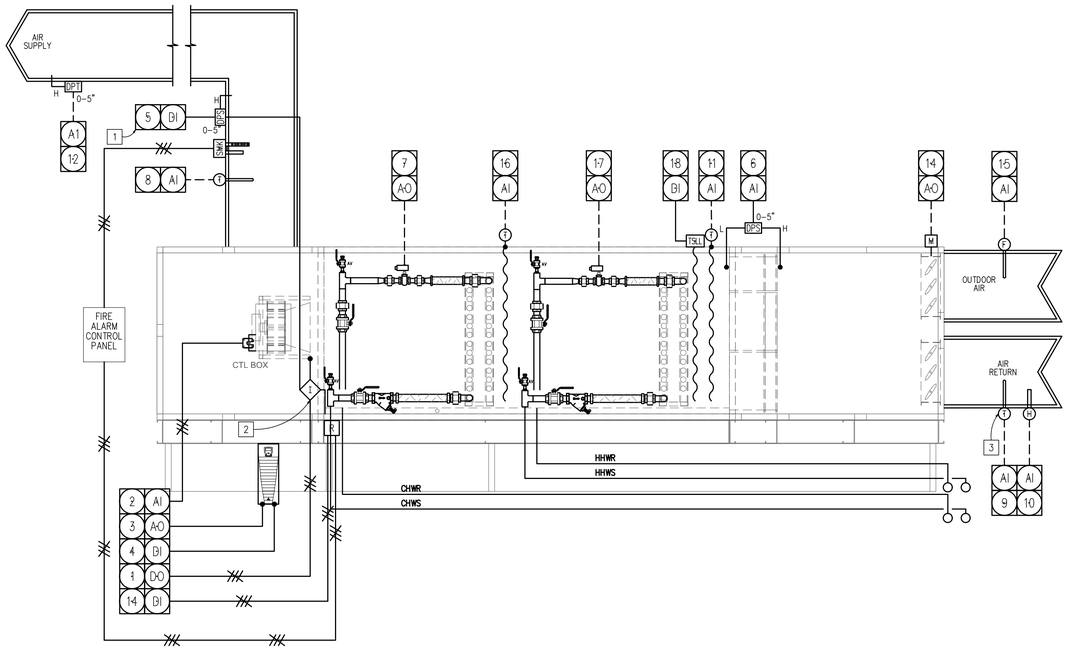
[3] REMOTE MOUNTED SENSORS/DEVICES. RE: SHEET BA100 SERIES DRAWINGS FOR LOCATIONS OF SENSORS/DEVICES.

DDC POINTS LIST SUMMARY - AIR HANDLING UNIT "AHU-1"

#	CONTROL POINTS	DDC HARD WIRED POINTS: DIGITAL INPUTS	DDC HARD WIRED POINTS: DIGITAL OUTPUTS	DDC HARD WIRED POINTS: ANALOG INPUTS	DDC HARD WIRED POINTS: ANALOG OUTPUTS	INTERFACE: READ DATA POINT	INTERFACE: READ/WRITE DATA POINT	GUI APPLICATION: TREND LOGGING	GUI APPLICATION: RUN TIME ACCUMULATION	GUI APPLICATION: OPERATION SCHEDULE	GUI APPLICATION: SCREEN DISPLAYED	GUI APPLICATION: USER OVERRIDE	ALARMING SCENARIOS: OUT OF RANGE	ALARMING SCENARIOS: POINT STATUS	ALARMING SCENARIOS: COMMAND FAILURE	ALARMING SCENARIOS: CALCULATED EVENT	ALARM PRIORITIES: NOTIFICATION	ALARM PRIORITIES: MAINTENANCE	ALARM PRIORITIES: MAJOR	ALARM PRIORITIES: CRITICAL	SUPPLEMENTARY NOTES
1	SUPPLY FAN VFD START/STOP		X					X	X			X	X					X			
2	SUPPLY FAN VFD STATUS			X				X			X			X				X			
3	SUPPLY FAN VFD SPEED				X			X			X	X						X			
4	SUPPLY FAN VFD FAULT	X						X	X		X	X		X				X			
5	SUPPLY DUCT HIGH STATIC PRESSURE CUT-OUT	X						X			X			X					X		
6	DIRTY FILTER SENSOR			X				X			X		X			X		X			
7	CHILLED WATER CONTROL VALVE COMMAND				X			X			X	X						X			
8	SUPPLY AIR TEMPERATURE			X				X			X		X			X		X			
9	RETURN AIR TMPERATURE			X				X			X		X			X		X			
10	RETURN AIR HUMIDITY			X				X			X		X			X		X			
11	MIXED AIR TEMPERATURE			X				X			X		X			X		X			
12	DUCT STATIC PRESSURE			X				X			X		X			X		X			
13	FIRE ALARM SHUTDOWN STATUS	X						X			X			X					X		
14	OUTSIDE AIR DAMPER COMMAND				X			X			X	X							X		
15	OUTSIDE AIR FLOW			X				X			X			X					X		
16	LEAVING PREHEAT COIL AIR TEMPERATURE			X				X			X		X					X			
17	HOT WATER CONTROL VALVE COMMAND				X			X			X	X							X		
18	FREEZE STAT		X					X			X			X					X		

#	EQUIPMENT CONTROLLED / MONITORED
1	AHU-1 SHOWN
2	AHU-4 SIMILAR
3	

NOTES:
1)



1 AIR HANDLING UNIT "AHU 1" CONTROL SCHEMATIC

NO SCALE (AHU-4 SIMILAR)

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
PROFESSIONAL ENGINEER

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DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
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PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

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DESIGNED BY: MRB

SHEET TITLE:

BAS
AHU SCHEMATIC AND SCHEDULE

SHEET NUMBER:

BA502

76 OF 111 SHEETS
MARCH 21, 2023

SEQUENCE OF OPERATION

A. GENERAL: THE AHU IS A VARIABLE AIR VOLUME TYPE AIR HANDLER WITH CHILLED WATER COOLING AND HEATING HOT WATER. THE AHU INCLUDES A SUPPLY FAN WITH VFD AND COLD WATER COILS. (HOT WATER HEATING IS PROVIDED IN SUPPLY DUCT).

B. RUN CONDITIONS – SCHEDULED: THE UNIT SHALL RUN BASED UPON AN OPERATOR ADJUSTABLE SCHEDULE. THE SYSTEM SHALL BE CAPABLE OF OPERATING 24 HOURS PER DAY, 7 DAYS PER WEEK. PROGRAMMING SHALL BE PROVIDED TO ALLOW THE OWNER TO SELECT A DIFFERENT OCCUPIED SCHEDULE FOR EACH DAY OF THE WEEK.
1. OCCUPIED MODE: INITIALLY SET THE OCCUPIED SCHEDULE TO 24X7 (ADJ.). DURING OCCUPIED MODE THE SUPPLY FAN SHALL RUN CONTINUOUSLY AND OUTSIDE AIR DAMPER SHALL MODULATE OPEN TO MAINTAIN THE OUTSIDE AIR CFM SETPOINT.
2. UNOCCUPIED MODE: INITIALLY SET THE UNOCCUPIED SCHEDULE TO NONE (ADJ.). DURING UNOCCUPIED MODE THE FANS SHALL BE OFF AND OUTSIDE AIR DAMPER SHALL BE CLOSED AND HEATING AND COOLING SHALL BE DISABLED.
3. NIGHT SETBACK/NIGHT SETUP: WHEN IN "UNOCCUPIED" MODE, THE UNIT WILL CYCLE ON AS NECESSARY TO MAINTAIN THE NIGHT SETBACK/NIGHT SETUP ZONE TEMPERATURE AT SETPOINT. THE RETURN AIR DAMPER SHALL OPEN WHILE THE OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL REMAIN CLOSED. COOLING SHALL BE ALLOWED FOR NIGHT SETUP MODE.
4. AHU OPTIMAL START: THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START-UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD. MINIMUM OUTSIDE AIR SEQUENCE SHALL BE DISABLED. DAMPER SHALL ONLY OPEN IF CALLING FOR ECONOMIZER.

C. PROOFS AND SAFETIES: THE SUPPLY FAN(S), AND ALL ASSOCIATED BAS HARDWARE CONTROL LOOPS SHALL BE SUBJECT TO PROOFS AND SAFETIES. SAFETIES SHALL BE DIRECT-HARDWIRE INTERLOCKS TO THE VFD. BAS HARDWARE SHALL MONITOR ALL PROOFS AND SAFETIES AND FAILURE OF ANY PROOF OR ACTIVATION OF ANY SAFETY SHALL RESULT IN ALL CONTROL LOOPS BEING DISABLED AND THE AHU FAN BEING COMMANDED OFF UNTIL RESET.
1. SHUTDOWN SEQUENCE: THE FOLLOWING SHALL OCCUR WHEN THE UNIT IS SHUTDOWN:
   a. SUPPLY FAN VFD(S) SHALL RAMP DOWN TO 0% AND THEN THE FAN SHALL BE DISABLED.
   b. EXHAUST FAN VFD SHALL RAMP DOWN TO 0% AND THEN THE FAN SHALL BE DISABLED.
   c. DISABLE HEATING AND COOLING.
   d. OUTSIDE AIR, RETURN AIR, AND EXHAUST AIR DAMPER SHALL CLOSE.
2. SAFETIES:
   a. FIRE ALARM SYSTEM SHUTDOWN: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A FIRE ALARM SIGNAL FROM THE FIRE ALARM SYSTEM.
   b. FREEZE-STAT: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A TEMPERATURE SENSOR LOW-LIMIT ALARM. FREEZE-STAT SHALL BE HARDWIRED TO STOP VFDS WHEN UNIT MOUNTED FREEZE-STAT IS BELOW 35degF (ADJ.).
3. PROOFS:
   a. SUPPLY FAN #1 FAIL TO INDICATE STATUS: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM IF THE UNIT HAS BEEN COMMANDED ON AND STATUS IS NOT INDICATED AFTER A 1 MIN. (ADJ.) DELAY.
   b. SUPPLY FAN #2 FAIL TO INDICATE STATUS: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM IF THE UNIT HAS BEEN COMMANDED ON AND STATUS IS NOT INDICATED AFTER A 1 MIN. (ADJ.) DELAY.

D. VFD CONTROL: THE FAN VARIABLE FREQUENCY DRIVES (VFD) SHALL EACH HAVE AN INTEGRAL H-O-A SWITCH:
1. HAND POSITION: WITH THE H-O-A SWITCH IN HAND POSITION, THE SUPPLY FAN SHALL START AND RUN CONTINUOUSLY, SUBJECT TO SAFETIES. FAN SPEED SHALL BE UNDER MANUAL-OPERATOR CONTROL.
2. OFF POSITION: WITH THE H-O-A SWITCH IN OFF POSITION, THE SUPPLY FAN SHALL STOP.
3. AUTO POSITION: WITH THE H-O-A SWITCH IN AUTO POSITION, THE SUPPLY FAN SHALL RUN SUBJECT TO THE SUPPLY FAN START/STOP SIGNAL AND SAFETIES. FAN SPEED SHALL BE UNDER CONTROL OF THE BAS.

E. SINGLE ZONE AIR HANDLING UNIT WITH VARIABLE FLOW AND TEMPERATURE CONTROL: THE BAS SHALL GENERATE A SINGLE ZONE AHU PID LOOP TO CONTROL THE HEATING, COOLING, AND FAN SPEED. REFER TO DETAIL 2 ON THIS SHEET FOR SCHEMATIC.

F. SUPPLY FAN: THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN. THE FAN SHALL RUN FOR A MINIMUM OF 1 MIN (ADJ.) UNLESS SHUTDOWN ON SAFETIES. THE CONTROLLER SHALL INITIALLY COMMAND THE SUPPLY FAN(S) TO ITS MINIMUM SPEED SETTING, INITIALLY 50% (ADJ.). THE SUPPLY FAN(S) SHALL MODULATE BETWEEN ITS MINIMUM SPEED SETPOINT AND 100% IN ORDER TO MAINTAIN THE ZONE TEMPERATURE SETPOINT.
ALARMS SHALL BE PROVIDED AS FOLLOWS:
1. SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF. STATUS SHALL BE MONITORED VIA ANALOG CT AND LOSS OF STATUS SHALL BE COMPARED TO ADJUSTABLE LOW LIMIT SETTING SET BY CONTROLS CONTRACTOR TO BE JUST BELOW MINIMUM AMPS DURING MINIMUM SPEED OF OPERATION.
2. SUPPLY FAN MANUAL OVERRIDE: COMMANDED OFF, BUT THE STATUS IS ON.
3. SUPPLY FAN VFD COMMON ALARM.

SEQUENCE OF OPERATION (CONT.)

H. SUPPLY AIR TEMPERATURE RESET: THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND RESET THE SUPPLY AIR TEMPERATURE SETPOINT BASED UPON SINGLE ZONE AHU VARIABLE FLOW AND TEMPERATURE CONTROL LOGIC. THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET BETWEEN 55degF AND 95degF. FOR COOLING CONTROL LEAVING COIL TEMPERATURE SHALL BE USED IN LIEU OF SA-T.

I. HEATING AND COOLING LOCKOUT: HEATING AND COOLING SHALL BE LOCKED OUT WHEN THE ZONE TEMPERATURE IS BETWEEN THE HEATING AND COOLING ZONE SETPOINTS.

J. CHILLED WATER COOLING CONTROL: THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE CHILLED WATER CONTROL VALVE TO MAINTAIN THE COOLING SETPOINT. THE COOLING PID LOOP SHALL UTILIZE THE COOLING COIL LEAVING AIR TEMPERATURE IN LIEU OF THE SA-T SENSOR. INITIALLY THE COOLING SETPOINT SHALL BE SET TO 74degF (ADJ.)
1. COOLING SHALL BE ENABLED WHENEVER:
   a. AND THE SUPPLY FAN STATUS IS ON
   b. AND HEATING MODE IS DISABLED, UNLESS UNIT IS IN HIGH RELATIVE HUMIDITY MODE.
2. HIGH RELATIVE HUMIDITY MODE: UPON A RETURN AIR HUMIDITY ABOVE 60% (ADJ.) THE CONTROLLER SHALL RESET THE SUPPLY AIR TEMPERATURE SETPOINT TO 55degF (ADJ.). WHEN THE RETURN AIR HUMIDITY FALLS BELOW 55% (5% HYSTERESIS), THE UNIT SHALL RESET THE SUPPLY AIR TEMPERATURE AS LISTED ABOVE.
3. LOW LIMIT TRIP: UPON A LOW LIMIT TEMPERATURE TRIP, THE CHILLED WATER VALVES SHALL BE COMMANDED TO 50% (ADJ.) AND THE LEAD CHILLED WATER PUMP SHALL BE ENABLED TO FLOW THROUGH THE COIL.

K. HOT WATER HEATING CONTROL: THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND SA-T, AND MODULATE THE HOT WATER CONTROL VALVE TO MAINTAIN THE HEATING SA-T SETPOINT. INITIALLY THE ZONE HEATING SETPOINT SHALL BE SET TO 70degF (ADJ.)
1. HEATING SHALL BE ENABLED WHENEVER:
   a. AND THE SUPPLY FAN STATUS IS ON
   b. AND COOLING MODE IS DISABLED OR IN HIGH RELATIVE HUMIDITY MODE.

L. FILTER DIFFERENTIAL PRESSURE: THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE EACH FILTER. ALARMS SHALL BE PROVIDED AS FOLLOWS:
1. FILTER CHANGE REQUIRED: FILTER DIFFERENTIAL PRESSURE EXCEEDS 0.6" (ADJ.).

N. DISCHARGE AIR TEMPERATURE: THE CONTROLLER SHALL MONITOR THE DISCHARGE AIR TEMPERATURE. ALARMS SHALL BE PROVIDED AS FOLLOWS:
1. HIGH DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 120degF (ADJ.).
2. LOW DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40degF (ADJ.).

O. CONTROLLER LOSS OF COMMUNICATIONS: IF AN AHU CONTROLLER LOSES COMMUNICATION TO THE BAS, THE AHU SHALL BE ENABLED BY ITS LOCAL CONTROLLER AND OPERATE PER LOCAL CONTROL. THE BAS SHALL MONITOR COMMUNICATION TO THE CONTROLLER AND UPON LOSING COMMUNICATION TO THE CONTROLLER THE BAS SHALL GENERATE A LOSS OF COMMUNICATION ALARM.

P. LOW MIXED AIR TEMP FREEZE PROTECTION: IF THE MA-T DROPS BELOW 45 DEG (ADJ), OPEN THE CHILLED WATER VALVE 10% (ADJ). THIS SHALL OCCUR ON RUNNING AND NON-RUNNING UNITS.

[X] KEY NOTES

[1] THE SUPPLY FAN AND ALL ASSOCIATED BAS HARDWARE CONTROL LOOPS SHALL BE SUBJECT TO PROOFS AND SAFETIES. SAFETIES SHALL BE DIRECT-HARDWIRE INTERLOCKS TO EACH VFD. RE: SEQUENCE OF OPERATIONS FOR REQUIRED PROOFS AND SAFETIES.

[2] REMOTE MOUNTED SENSORS/DEVICES. RE: SHEET BA100 SERIES FOR LOCATIONS OF SENSORS/DEVICES.

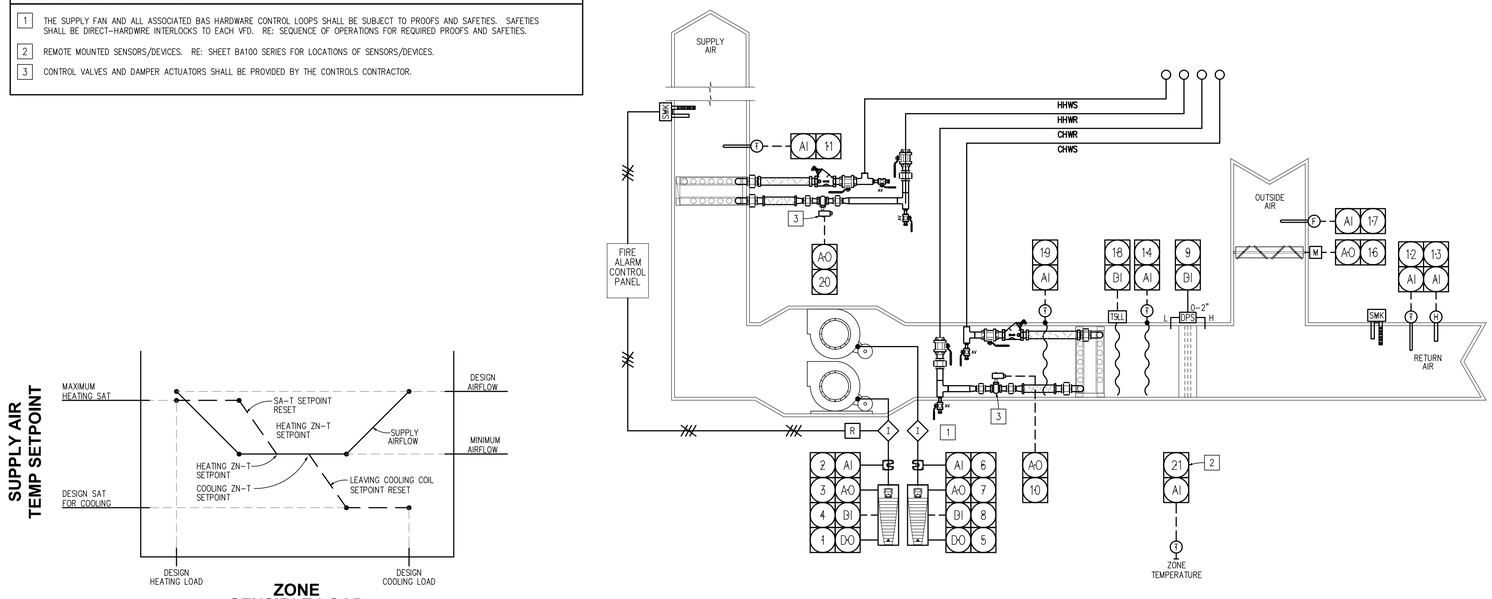
[3] CONTROL VALVES AND DAMPER ACTUATORS SHALL BE PROVIDED BY THE CONTROLS CONTRACTOR.

DDC POINTS LIST SUMMARY - AIR HANDLING UNIT "AHU-2"

#	CONTROL POINTS	DDC HARD WIRED POINTS: DIGITAL INPUTS	DIGITAL OUTPUTS	ANALOG INPUTS	ANALOG OUTPUTS	INTERFACE: READ DATA POINT	READ/WRITE DATA POINT	GUI APPLICATION: TREND LOGGING	RUN TIME ACCUMULATION	OPERATION SCHEDULE	SCREEN DISPLAYED	USER OVERRIDE	ALARMING SCENARIOS: OUT OF RANGE	POINT STATUS	COMMAND FAILURE	CALCULATED EVENT	ALARM PRIORITIES: NOTIFICATION	MAINTENANCE	MAJOR	CRITICAL	SUPPLEMENTARY NOTES
1	SUPPLY FAN #1 VFD START/STOP		X					X	X		X	X						X			
2	SUPPLY FAN #1 VFD STATUS			X				X			X			X				X			
3	SUPPLY FAN #1 VFD SPEED				X			X			X	X						X			
4	SUPPLY FAN #1 VFD FAULT	X						X	X		X	X		X				X			
5	SUPPLY FAN #2 VFD START/STOP		X					X	X		X	X						X			NOTE 1
6	SUPPLY FAN #2 VFD STATUS			X				X			X			X				X			NOTE 1
7	SUPPLY FAN #2 VFD SPEED				X			X			X	X						X			NOTE 1
8	SUPPLY FAN #2 VFD FAULT	X						X	X		X	X		X				X			NOTE 1
9	DIRTY FILTER SENSOR			X				X			X		X			X		X			
10	CHILLED WATER CONTROL VALVE COMMAND				X			X			X	X						X			
11	SUPPLY AIR TEMPERATURE			X				X			X		X			X		X			
12	RETURN AIR TMPERATURE			X				X			X		X			X		X			
13	RETURN AIR HUMIDITY			X				X			X		X			X		X			
14	MIXED AIR TEMPERATURE			X				X			X		X			X		X			
15	FIRE ALARM SHUTDOWN STATUS	X						X			X			X					X		
16	OUTSIDE AIR DAMPER COMMAND				X			X			X	X							X		
17	OUTSIDE AIR FLOW			X				X			X			X					X		
18	FREEZE STAT		X					X			X			X					X		
19	LEAVING CHILLED WATER COIL AIR TEMPERATURE			X				X			X		X					X			
20	HOT WATER REHEAT CONTROL VALVE COMMAND				X			X			X	X							X		
21	ZONE TEMPERATURE SENSOR			X				X			X		X			X		X			

#	EQUIPMENT CONTROLLED / MONITORED
1	AHU-2 SHOWN
2	AHU-3 & AHU-5 THRU AHU-14 SIMILAR
3	

NOTES:
1) AHU-2, AHU-3, AND AHU-5 THRU AHU-10 CONTAIN (2) SUPPLY FANS AND (2) VFDS. ALL OTHER AHU CONTAIN (1) SUPPLY FAN AND 1 VFD.



1 AIR HANDLING UNIT "AHU 2" CONTROL SCHEMATIC
NO SCALE (AHU-3, & 5-14 SIMILAR)

2 SINGLE ZONE AHU FAN SPEED CONTROL
NO SCALE

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:
HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:
BAS
AHU SCHEMATIC AND SCHEDULE

SHEET NUMBER:
BA503

77 OF 111 SHEETS
MARCH 21, 2023

CONTROL VALVE SCHEDULE

CONTROL VALVE NAME	EQUIPMENT	CONTROLLED MEDIUM	GPM	VALVE PD (PSI)	SHUTOFF PD (PSI)	TYPE	LINE SIZE (IN)	VALVE SIZE (IN)	CONFIGURATION	ACTUATION	MANUFACTURER	VALVE MODEL	ACTUATOR MODEL	NOTES
AHU-1-CHWV	AHU-1 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	61.2	3.0	200.0	ePIV	2 1/2	2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2200SU-761	AKRX24-EP2	1
AHU-1-HHWV	AHU-1 HOT WATER VALVE	HOT WATER (0% P.G.)	13.8	2.0	200.0	ePIV	1 1/4	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
AHU-2-CHWV	AHU-2 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	30.8	1.5	200.0	ePIV	2	1 1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2150SU-396	AKRX24-EP2	1
AHU-2-HHWV	AHU-2 HOT WATER VALVE	HOT WATER (0% P.G.)	9.8	0.5	200.0	ePIV	2	1 1/4	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2125SU-285	AKRX24-EP2	1
AHU-3-CHWV	AHU-3 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	32.6	2.0	200.0	ePIV	2	1 1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2150SU-396	AKRX24-EP2	1
AHU-3-HHWV	AHU-3 HOT WATER VALVE	HOT WATER (0% P.G.)	17.2	1.5	200.0	ePIV	2	1 1/4	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2125SU-285	AKRX24-EP2	1
AHU-4-CHWV	AHU-4 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	89	3.8	200.0	ePIV	3	2 1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P6250SU-127	AKRX24-EP2	1
AHU-4-HHWV	AHU-4 HOT WATER VALVE	HOT WATER (0% P.G.)	26.2	1.5	200.0	ePIV	2	1 1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2150SU-396	AKRX24-EP2	1
AHU-5-CHWV	AHU-5 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	27.9	1.5	200.0	ePIV	2	1 1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2150SU-396	AKRX24-EP2	1
AHU-5-HHWV	AHU-5 HOT WATER VALVE	HOT WATER (0% P.G.)	15.2	2.5	200.0	ePIV	1 1/2	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
AHU-6-CHWV	AHU-6 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	27.9	1.5	200.0	ePIV	2	1 1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2150SU-396	AKRX24-EP2	1
AHU-6-HHWV	AHU-6 HOT WATER VALVE	HOT WATER (0% P.G.)	15.2	2.5	200.0	ePIV	1 1/2	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
AHU-7-CHWV	AHU-7 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	27.9	1.5	200.0	ePIV	2	1 1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2150SU-396	AKRX24-EP2	1
AHU-7-HHWV	AHU-7 HOT WATER VALVE	HOT WATER (0% P.G.)	15.2	2.5	200.0	ePIV	1 1/2	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
AHU-8-CHWV	AHU-8 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	27.9	1.5	200.0	ePIV	2	1 1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2150SU-396	AKRX24-EP2	1
AHU-8-HHWV	AHU-8 HOT WATER VALVE	HOT WATER (0% P.G.)	15.2	2.5	200.0	ePIV	1 1/2	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
AHU-9-CHWV	AHU-9 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	27.9	1.5	200.0	ePIV	2	1 1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2150SU-396	AKRX24-EP2	1
AHU-9-HHWV	AHU-9 HOT WATER VALVE	HOT WATER (0% P.G.)	15.2	2.5	200.0	ePIV	1 1/2	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
AHU-10-CHWV	AHU-10 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	27.9	1.5	200.0	ePIV	2	1 1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2150SU-396	AKRX24-EP2	1
AHU-10-HHWV	AHU-10 HOT WATER VALVE	HOT WATER (0% P.G.)	15.2	2.5	200.0	ePIV	1 1/2	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
AHU-11-CHWV	AHU-11 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	16.5	2.8	200.0	ePIV	1 1/2	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
AHU-11-HHWV	AHU-11 HOT WATER VALVE	HOT WATER (0% P.G.)	13.8	2.3	200.0	ePIV	1 1/2	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
AHU-12-CHWV	AHU-12 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	17	1.0	200.0	ePIV	1 1/2	1 1/4	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2125SU-285	AKRX24-EP2	1
AHU-12-HHWV	AHU-12 HOT WATER VALVE	HOT WATER (0% P.G.)	9.2	0.5	200.0	ePIV	1 1/4	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
AHU-13-CHWV	AHU-13 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	11	1.3	200.0	ePIV	1 1/4	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
AHU-13-HHWV	AHU-13 HOT WATER VALVE	HOT WATER (0% P.G.)	6.8	1.5	200.0	ePIV	1 1/4	3/4	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2075SU-103	AKRX24-EP2	1
AHU-14-CHWV	AHU-14 CHILLED WATER VALVE	CHILLED WATER (25% P.G.)	29.7	1.5	200.0	ePIV	2	1 1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2150SU-396	AKRX24-EP2	1
AHU-14-HHWV	AHU-14 HOT WATER VALVE	HOT WATER (0% P.G.)	20.7	1.8	200.0	ePIV	2	1 1/4	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2125SU-285	AKRX24-EP2	1
VAV-1-1-HHWV	VAV-1-1 HOT WATER VALVE	HOT WATER (0% P.G.)	1.8	0.5	200.0	ePIV	3/4	1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2050SU-055	AKRX24-EP2	1
VAV-1-2-HHWV	VAV-1-2 HOT WATER VALVE	HOT WATER (0% P.G.)	9.8	1.0	200.0	ePIV	1 1/4	1	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2100SU-182	AKRX24-EP2	1
VAV-1-3-HHWV	VAV-1-3 HOT WATER VALVE	HOT WATER (0% P.G.)	2.8	0.8	200.0	ePIV	3/4	1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2050SU-055	AKRX24-EP2	1
VAV-1-6-HHWV	VAV-1-6 HOT WATER VALVE	HOT WATER (0% P.G.)	3.7	1.3	200.0	ePIV	3/4	1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2050SU-055	AKRX24-EP2	1
VAV-2-2-HHWV	VAV-2-2 HOT WATER VALVE	HOT WATER (0% P.G.)	4.1	0.8	200.0	ePIV	1	3/4	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2075SU-103	AKRX24-EP2	1
VAV-2-3-HHWV	VAV-2-3 HOT WATER VALVE	HOT WATER (0% P.G.)	3.8	1.3	200.0	ePIV	3/4	1/2	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2050SU-055	AKRX24-EP2	1
VAV-2-4-HHWV	VAV-2-4 HOT WATER VALVE	HOT WATER (0% P.G.)	5.7	1.0	200.0	ePIV	3/4	3/4	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2075SU-103	AKRX24-EP2	1
VAV-2-5-HHWV	VAV-2-5 HOT WATER VALVE	HOT WATER (0% P.G.)	9.0	3.0	200.0	ePIV	1	3/4	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2075SU-103	AKRX24-EP2	1
VAV-2-7-HHWV	VAV-2-7 HOT WATER VALVE	HOT WATER (0% P.G.)	8.0	2.8	200.0	ePIV	1	3/4	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2075SU-103	AKRX24-EP2	1
VAV-2-8-HHWV	VAV-2-8 HOT WATER VALVE	HOT WATER (0% P.G.)	8.2	2.8	200.0	ePIV	3/4	3/4	PI 2-WAY N.O., F.O. SPRING RETURN	2-10VDC	BELIMO	P2075SU-103	AKRX24-EP2	1

NOTES:

1. VALVE MODEL SHOWN BASED ON MAXIMUM FLOW FOR BODY SIZE @ 5PSI PRESSURE DROP. PROVIDE VALVE SET TO ACTUAL GPM LISTED.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

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CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
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DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER
OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

BAS
SCHEDULES

SHEET NUMBER:

BA600

78 OF 111 SHEETS
MARCH 21, 2023

DDC POINTS LIST SUMMARY - CHILLED WATER SYSTEM

#	CONTROL POINTS	DDC HARD WIRED POINTS: DIGITAL INPUTS	DIGITAL OUTPUTS	ANALOG INPUTS	ANALOG OUTPUTS	INTERFACE: READ DATA POINT	READ/WRITE DATA POINT	GUI APPLICATION: TREND LOGGING	RUN TIME ACCUMULATION	OPERATION SCHEDULE	SCREEN DISPLAYED	USER OVERRIDE	ALARMING SCENARIOS: OUT OF RANGE	POINT STATUS	COMMAND FAILURE	CALCULATED EVENT	ALARM PRIORITIES: NOTIFICATION	MAINTENANCE	MAJOR	CRITICAL	SUPPLEMENTARY NOTES
1	CHILLER "1" START/STOP		X					X	X		X	X			X			X			
2	CHILLER "1" ALARM	X						X	X		X	X			X			X			
3	CHILLER "1" TEMPERATURE RESET				X			X			X	X									
4	CHILLER "1" CHILLED WATER DIFFERENTIAL PRESSURE			X				X			X	X	X			X		X			
5	CHILLED WATER PUMP "1" START/STOP		X					X	X		X	X			X			X			
6	CHILLED WATER PUMP "1" STATUS			X				X			X					X				X	
7	CHILLED WATER PUMP "1" VFD SPEED				X			X			X	X			X			X			
8	CHILLED WATER PUMP "1" VFD FAULT	X						X	X		X	X			X			X			
9	CHILLED WATER SUPPLY TEMPERATURE			X				X			X		X			X		X			
10	CHILLED WATER RETURN TEMPERATURE			X				X			X		X			X		X			
11	CHILLED WATER BYPASS VALVE COMMAND				X			X			X	X			X			X			
12	CHILLED WATER BYPASS VALVE FEEDBACK			X				X			X			X				X			
13	OUTDOOR AIR TEMPERATURE			X				X			X	X	X			X		X			
14	OUTDOOR AIR HUMIDITY			X				X			X	X	X			X		X			
15	GLYCOL FEED PUMP STATUS	X						X	X		X			X		X		X			
16	GLYCOL FEED SYSTEM LOW LEVEL TANK ALARM	X						X	X		X			X		X		X			
17	CHILLED WATER SYSTEM FILL PRESSURE			X				X				X	X			X		X			

#	EQUIPMENT CONTROLLED / MONITORED
1	CHILLER CH-1
2	CHILLED WATER PUMP – CHWP-1
3	

NOTES:
1)

KEY NOTES:

1. PROVIDE TEMPERATURE SENSOR IN CHILLED WATER PIPE. TEMPERATURE SENSOR WELL SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. FIELD VERIFY EXACT LOCATION AND COORDINATE WITH MECHANICAL CONTRACTOR.
2. PROVIDE 3" 2-WAY CHARACTERIZED BALL VALVE BYPASS VALVE WITH A 90 Cv AND N.O. ELECTRONIC SPRING RETURN ACTUATOR. BASIS OF DESIGN BELIMO B2 CCV. FIELD VERIFY EXACT LOCATION. COORDINATE WITH MECHANICAL CONTRACTOR.
3. PROVIDE DIFFERENTIAL PRESSURE TRANSMITTER IN LOCATION SHOWN BY MECHANICAL CONTRACTOR. FIELD VERIFY EXACT LOCATION. COORDINATE WITH MECHANICAL CONTRACTOR.
4. REMOTE MOUNTED SENSORS/DEVICES. RE: SHEET BA101B FOR LOCATIONS OF DEVICES. FIELD VERIFY EXACT LOCATION.

GENERAL NOTES:

1) RE: BA001 FOR GENERAL NOTES & SYMBOLS.
3) RE: BA100 SERIES DRAWINGS FOR MECHANICAL PLANS INDICATING SENSOR LOCATIONS, ETC.
4) RE: BA500 FOR BUILDING AUTOMATION NETWORK RISER DIAGRAM.
5) RE: M500 & M600 SERIES DRAWINGS FOR MECHANICAL DETAILS AND EQUIPMENT SCHEDULES

CHILLED WATER SYSTEM SEQUENCE OF OPERATION

A. GENERAL: THE CHILLED WATER SYSTEM CONSISTS OF (1) AIR-COOLED CHILLER, (1) VARIABLE FLOW CHILLED WATER PUMP. THE CHILLER IS CONNECTED TO THE BAS BY A BACNET MS/TP NETWORK CONNECTION. THE BAS WILL CONTROL THE STARTING AND STOPPING OF THE CHILLER AND SET THE HARDWIRED CHILLED WATER SETPOINT VIA HARDWIRED.

B. SYSTEM ENABLE: THE CHILLED WATER SYSTEM SHALL BE ENABLED WHENEVER THE OUTSIDE AIR TEMPERATURE IS ABOVE 55 DEGREES (ADJUSTABLE) WITH A 5 DEGREE DEADBAND (ADJUSTABLE) OR ANYTIME THE CHILLER REQUESTS RISE ABOVE 2 (ADJ.) WITH A HYSTERISIS OF 1 (ADJ) REQUEST.

C. CHILLER REQUEST: THE BAS SHALL MONITOR THE CHILLED WATER VALVE COMMANDED POSITION ON ALL AHU CHILLED WATER VALVES. A CHILLER REQUEST SHALL BE GENERATED ANYTIME THE VALVE POSITION RISES ABOVE 90% (ADJ.) OPEN FOR EACH INDIVIDUAL VALVE.

D. CHILLED WATER SETPOINT: THE CHILLED WATER SUPPLY TEMPERATURE LEAVING THE CHILLER SHALL BE DETERMINED BY THE BAS AND HARDWIRED TO THE CHILLER. BAS LOGIC SHALL BE PROVIDED TO ALLOW THE OPERATOR TO UTILIZE THE FOLLOWING CHWS-T RESETS OR A MANUALLY OVERRIDDEN FIXED SETPOINT:
1. OUTSIDE AIR RESET: RESET THE CHWS-T AS THE OUTSIDE AIR TEMPERATURE RANGES FROM 85F (ADJ.) TO 55F (ADJ.), THE CHWS-T-SP RANGES FROM 42F (ADJ.) TO 54F (ADJ.)
2. REQUEST OPTIMIZATION WITH OUTSIDE AIR RESET ACTING AS A LOW LIMIT.
3. REQUEST OPTIMIZATION ONLY: UTILIZE TRIM AND RESPOND LOGIC TO RESET THE CHWS-T FROM 42F (ADJ) TO 54F (ADJ) EVERY 10 MIN, TRIM THE CURRENT SETPOINT BY 0.5F (ADJ.), THEN RESPOND WITH -0.25F (ADJ.) FOR EACH REQUEST WITH A MAX RESPONSE OF -1F (ADJ.)
* OPTION 3 ITEM ABOVE SHALL BE UTILIZED INITIALLY FOR THE RESET.

E. CHILLER OPERATION: WHEN THE CHILLED WATER SYSTEM IS ENABLED THE BAS SHALL:
1. THE BAS SHALL START THE CHILLED WATER PUMP.
2. ENABLE THE CHILLER. THE CHILLER SHALL START TO ENABLE COMPRESSORS TO MAINTAIN ITS ASSOCIATED CHILLED WATER SUPPLY TEMPERATURE SETPOINT ONCE FLOW IS VERIFIED VIA LOCAL FLOW SWITCH.

F. CHILLED WATER PUMP OPERATION: THE CHILLED WATER PUMPING SYSTEM CONSISTS OF (1) PUMP WITH VARIABLE FREQUENCY DRIVE. THE PUMP SPEED SHALL MODULATE TO MAINTAIN THE LOOP CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT OF 10 PSI (ADJ.) (AS DETERMINED BY TAB). ALARMS SHALL BE PROVIDED FOR THE CHILLED WATER PUMP AS FOLLOWS:
1. CHILLED WATER PUMP FAILURE: COMMANDED ON, BUT THE STATUS REMAINS OFF AFTER A 1 MIN. (ADJ.) DELAY. STATUS SHALL BE MONITORED VIA ANALOG CT AND LOSS OF STATUS SHALL BE COMPARED TO ADJUSTABLE LOW LIMIT SETTING SET BY CONTROLS CONTRACTOR TO BE JUST BELOW MINIMUM AMPS DURING MINIMUM SPEED OF OPERATION.
2. CHILLED WATER PUMP VFD FAULT: VFD IS FAULTED VIA VFD FAULT ALARM CONTACT.
3. CHILLED WATER PUMP MANUAL OVERRIDE: COMMANDED OFF, BUT THE STATUS IS ON AFTER A 1 MIN. (ADJ.) DELAY.
4. HIGH CHILLED WATER DP: IF THE CHILLED WATER DP IS 4PSI (ADJ.) ABOVE SETPOINT FOR 10 MIN. (ADJ.).
5. LOW CHILLED WATER DP: IF THE CHILLED WATER DP IS 4PSI (ADJ.) BELOW SETPOINT FOR 10 MIN. (ADJ.).

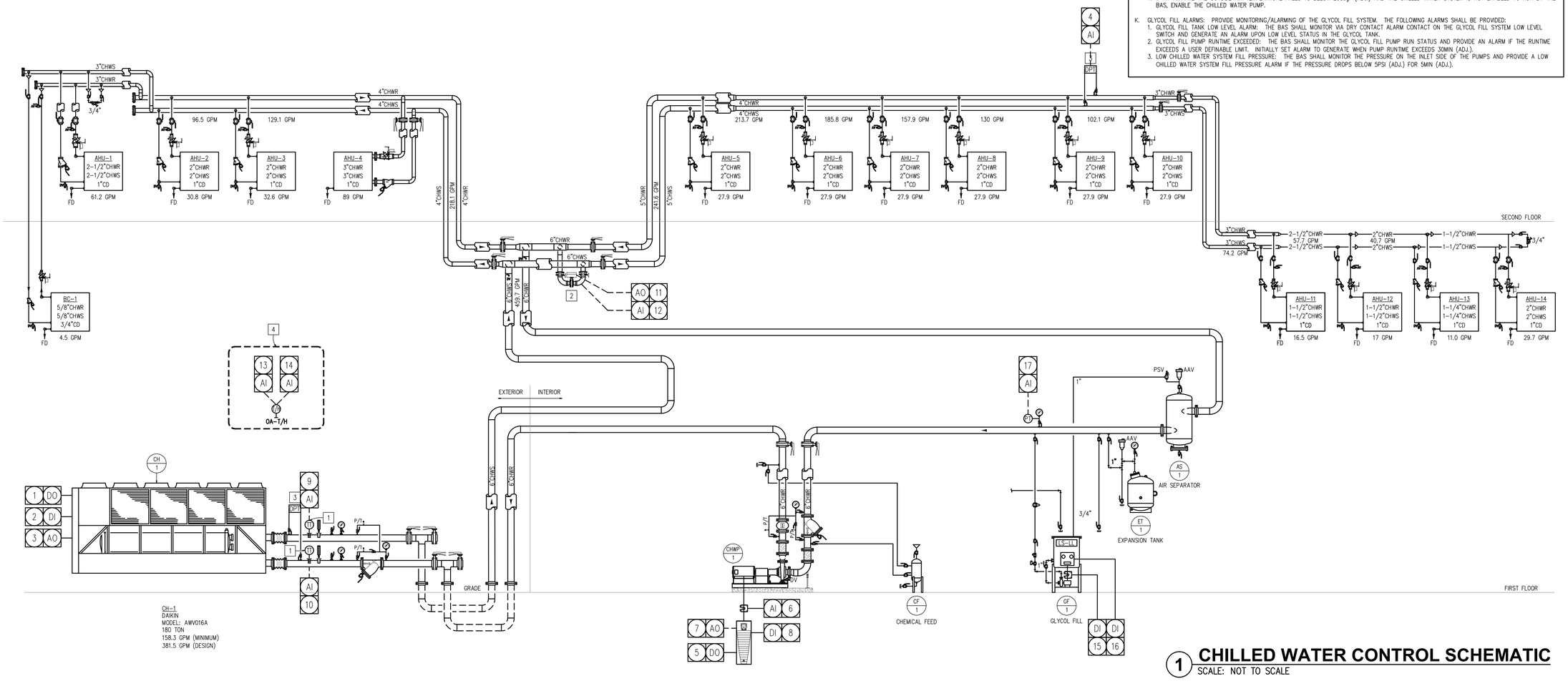
G. CHILLED WATER BYPASS - MINIMUM FLOW CONTROL: IF THE CHILLED WATER FLOW MEASURED VIA THE DIFFERENTIAL PRESSURE SENSOR ACROSS THE CHILLER EVAPORATOR BARREL READS BELOW MINIMUM CHILLER FLOW REQUIREMENTS, SYSTEM BYPASS VALVE WILL OPEN AND MODULATE TO MAINTAIN MINIMUM FLOW THRU THE CHILLER. IF AFTER 15 MIN, ADJUSTABLE, MINIMUM FLOW THRU CHILLER IS NOT ACHIEVED, A LOW CHILLER DIFFERENTIAL PRESSURE ALARM SHALL BE SENT TO BAS.

H. CHILLER FAILURE: IMMEDIATELY UPON A FAILURE ALARM SIGNAL AS DETECTED AT THE OPERATING CHILLER ALARM CONTACTS, THE BMS SHALL GENERATE A CHILLER FAILURE ALARM.

I. CHILLED WATER TEMPERATURE ALARMS: THE BAS SHALL PROVIDED THE FOLLOWING CHILLED WATER TEMPERATURE ALARMS:
1. HIGH CHILLED WATER SUPPLY TEMPERATURE: IF THE CHILLED WATER SUPPLY TEMPERATURE IS 7degF (ADJ.) ABOVE THE CHILLER LEAVING WATER SETPOINT FOR 15 MIN. (ADJ.) WITH A HYSTERESIS OF 1degF (ADJ.).
2. LOW CHILLED WATER SUPPLY TEMPERATURE: IF THE CHILLED WATER SUPPLY TEMPERATURE IS BELOW 38degF (ADJ.). FOR 15 MIN. (ADJ.) WITH A HYSTERESIS OF 1degF (ADJ.).

J. CHILLED WATER SYSTEM FREEZE PROTECTION:
1. IF AT ANYTIME THE OUTSIDE AIR TEMPERATURE FALLS TO BELOW 20degF (ADJ.) AND THE CHILLED WATER SYSTEM IS NOT ENABLED TO RUN BY THE BAS, ENABLE THE CHILLED WATER PUMP.

K. GLYCOL FILL ALARMS: PROVIDE MONITORING/ALARMING OF THE GLYCOL FILL SYSTEM. THE FOLLOWING ALARMS SHALL BE PROVIDED:
1. GLYCOL FILL TANK LOW LEVEL ALARM: THE BAS SHALL MONITOR VIA DRY CONTACT ALARM CONTACT ON THE GLYCOL FILL SYSTEM LOW LEVEL SWITCH AND GENERATE AN ALARM UPON LOW LEVEL STATUS IN THE GLYCOL TANK.
2. GLYCOL FILL PUMP RUNTIME EXCEEDED: THE BAS SHALL MONITOR THE GLYCOL FILL PUMP RUN STATUS AND PROVIDE AN ALARM IF THE RUNTIME EXCEEDS A USER DEFINABLE LIMIT. INITIALLY SET ALARM TO GENERATE WHEN PUMP RUNTIME EXCEEDS 30MIN (ADJ.).
3. LOW CHILLED WATER SYSTEM FILL PRESSURE: THE BAS SHALL MONITOR THE PRESSURE ON THE INLET SIDE OF THE PUMPS AND PROVIDE A LOW CHILLED WATER SYSTEM FILL PRESSURE ALARM IF THE PRESSURE DROPS BELOW 5PSI (ADJ.) FOR 5MIN (ADJ.).



CH-1
DAIKIN
MODEL: AWV016A
180 TON
158.3 GPM (MINIMUM)
381.5 GPM (DESIGN)

1 CHILLED WATER CONTROL SCHEMATIC
SCALE: NOT TO SCALE

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

CURTIS L. BRUNGARDT
NUMBER PE-2003016693
PROFESSIONAL ENGINEER
3-21-2023

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DESIGNED BY: MRB

SHEET TITLE:
BAS SCHEMATICS

SHEET NUMBER:
BA701

79 OF 111 SHEETS
MARCH 21, 2023

DDC POINTS LIST SUMMARY - HEATING HOT WATER SYSTEM

		DDC HARD WIRED POINTS				INTERFACE		GUI APPLICATION					ALARMING SCENARIOS					ALARM PRIORITIES				
#	CONTROL POINTS	DIGITAL INPUTS	DIGITAL OUTPUTS	ANALOG INPUTS	ANALOG OUTPUTS	READ DATA POINT	READ/WRITE DATA POINT	TREND LOGGING	RUN TIME ACCUMULATION	OPERATION SCHEDULE	SCREEN DISPLAYED	USER OVERRIDE	OUT OF RANGE	POINT STATUS	COMMAND FAILURE	CALCULATED EVENT	NOTIFICATION	MAINTENANCE	MAJOR	CRITICAL	SUPPLEMENTARY NOTES
1	BOILER SYSTEM ENABLE		X					X	X		X	X				X		X			
2	BOILER "1" ALARM	X						X			X								X		
3	BOILET "2" ALARM	X						X			X								X		
4	HOT WATER DIFFERENTIAL PRESSURE			X				X			X		X			X	X				
5	HOT WATER PUMP "1" START/STOP		X					X	X		X	X			X			X			
6	HOT WATER PUMP "1" STATUS			X				X			X					X			X		
7	HOT WATER PUMP "1" VFD SPEED				X			X			X	X			X			X			
8	HOT WATER PUMP "1" VFD FAULT	X						X	X		X	X			X			X			
9	HOT WATER PUMP "2" START/STOP		X					X	X		X	X			X			X			
10	HOT WATER PUMP "2" STATUS			X				X			X					X			X		
11	HOT WATER PUMP "2" VFD SPEED				X			X			X	X			X			X			
12	HOT WATER PUMP "2" VFD FAULT	X						X	X		X	X			X			X			
13	HOT WATER SUPPLY TEMPERATURE			X				X			X		X			X		X			
14	HOT WATER RETURN TEMPERATURE			X				X			X		X			X		X			
15	HOT WATER SUPPLY FLOW			X				X			X	X	X			X		X			
16	LOW/HIGH GAS SUPPLY PRESSURE			X				X	X		X			X		X			X		

#	EQUIPMENT CONTROLLED / MONITORED
1	BOILERS – B-01 & B-02
2	HOT WATER PUMPS – HHWP-1 & HHWP-2
3	

NOTES:
1)

HEATING HOT WATER SYSTEM SEQUENCE OF OPERATION

A. GENERAL: THE HEATING HOT WATER SYSTEM CONSISTS OF (2) NATURAL GAS BOILERS AND (2) VARIABLE FLOW HEATING HOT WATER PUMPS. THE BOILERS ARE CONNECTED TO THE BAS BY A BACNET MS/TP NETWORK CONNECTION. THE BAS WILL CONTROL THE STARTING AND STOPPING OF THE BOILERS AND SET THE HEATING HOT WATER SETPOINT.

B. SYSTEM ENABLE: IF THE OUTSIDE AIR TEMPERATURE IS BELOW 64 DEG. (ADJ.) WITH A 5 DEG. DEADBAND (ADJ.) THE HEATING HOT WATER SYSTEM WILL BE ENABLED. THE HEATING WATER SYSTEM SHALL ALSO MONITOR THE PERCENT OPEN POSITION OF ALL AHU HEATING COIL, REHEAT COILS, AND VAV COILS AND GENERATE A REQUEST ANYTIME THE VALVE POSITION IS GREATER THAN 90% IF THERE ARE MORE THAN 3 REQUIRED FOR HEAT, THE SYSTEM SHALL ENABLE EVEN IF THE SYSTEM IS NOT ENABLED FOR THE OUTDOOR AIR ENABLE.

C. BOILER OPERATION: THE BOILERS ARE CONNECTED TO THE BAS BY A BACNET NETWORK CONNECTION. THE BAS WILL ENABLE THE HEATING HOT WATER SYSTEM WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW THE ADJUSTABLE ENABLE SETPOINT. ONCE THE SYSTEM IS ENABLED THE BOILER CONTROL SYSTEM WILL SELECT WHICH BOILER WILL OPERATE AS LEAD AND OPEN ITS ASSOCIATED ISOLATION VALVE. THE LEAD HEATING HOT WATER PUMP WILL BE ENABLED AND RAMP UP TO MAINTAIN THE LOOP DIFFERENTIAL PRESSURE SETPOINT AND THE LEAD BOILER WILL ENABLE AND MODULATE TO MAINTAIN THE HEATING HOT WATER SUPPLY TEMPERATURE SETPOINT.

D. HOT WATER RESET: THE BAS SHALL MONITOR THE OA-T AND GENERATE A HEATING HOT WATER SUPPLY TEMPERATURE (HHWS-T) RESET. THE HHWS-T SHALL RESET BETWEEN 110 DEG. F – 130 DEG. F (ADJ.) BASED ON OA-T FROM 60 DEG. F TO 40 DEG. F (ADJ.)

E. LEAD/LAG BOILER OPERATION: THE LAG BOILERS WILL ALSO CYCLE ON IF THE SYSTEM LOAD REQUIRES ADDITIONAL BOILERS TO MAINTAIN THE SUPPLY TEMPERATURE SETPOINT. THE BOILERS SAFETIES CIRCUIT SHALL BE MONITORED AND THE SYSTEM SHALL GENERATE AN ALARM IF A SAFETY IS TRIPPED. A MANUAL RESET OF THE BOILER SAFETY WILL BE REQUIRED BEFORE THE BOILER WILL BE RESTARTED. UPON A BOILER FAILURE ALARM, THE 2-POSITION CONTROL VALVE SHALL BE COMMANDED OPEN AND THE REMAINING BOILERS SHALL MODULATE TO MAINTAIN THE HEATING SUPPLY TEMPERATURE SETPOINT.

F. LEAD/LAG PUMP ROTATION: LEAD/LAG SWITCHOVER WILL BE SELECTABLE BY THE OPERATOR AT THE BAS. THE OPERATOR WILL HAVE SELECT LEAD/LAG SWITCHOVER FROM THE FOLLOWING OPTIONS: RUNTIME HOURS (168 HOURS, ADJUSTABLE), WEEKLY (TUESDAYS @ 10AM), OR MANUAL SWITCHOVER. THE LEAD HEATING WATER PUMP WILL ROTATE BASED ON THE SELECTED SWITCHOVER STRATEGY. GENERAL LEAD/LAG CHANGEOVER SEQUENCE:
1. ENABLE THE LAG HEATING HOT WATER PUMP AT THE SAME SPEED OUTPUT AS THE LEAD.
2. ONCE THE OPERATING STATUS IS VERIFIED ON THE LAG PUMP, THE LAG PUMP SHALL BECOME THE LEAD PUMP.
3. DISABLE THE OLD LEAD PUMP.

G. HEATING HOT WATER PUMP OPERATION: THE HEATING HOT WATER PUMPING SYSTEM CONSISTS OF (2) PUMPS WITH VARIABLE FREQUENCY DRIVES. UNDER NORMAL CONDITIONS ONLY (1) PUMP SHALL OPERATE AT A TIME. THE SPEED OF THE LEAD HEATING HOT WATER PUMP SHALL MODULATE TO MAINTAIN THE HOT WATER DIFFERENTIAL PRESSURE SETPOINT OF 10PSI (ADJ.). UPON A HEATING HOT WATER PUMP FAILURE OR VFD FAULT, THE LAG PUMP SHALL BE ENABLED. ALARMS SHALL BE PROVIDED FOR THE HEATING HOT WATER PUMPS AS FOLLOWS:
1. HEATING HOT WATER PUMP FAILURE: COMMANDED ON, BUT THE STATUS REMAINS OFF AFTER A 1 MIN. (ADJ.) DELAY.
2. HEATING HOT WATER PUMP VFD FAULT: VFD IS FAULTED VIA VFD FAULT ALARM CONTACT.
3. HEATING HOT WATER PUMP MANUAL OVERRIDE: COMMANDED OFF, BUT THE STATUS IS ON AFTER A 1 MIN. (ADJ.) DELAY.
4. HIGH HOT WATER DP: IF THE HOT WATER DP IS 4PSI (ADJ.) ABOVE SETPOINT FOR 10 MIN. (ADJ.).
5. LOW HOT WATER DP: IF THE HOT WATER DP IS 4PSI (ADJ.) BELOW SETPOINT FOR 10 MIN. (ADJ.).
6. LAG HEATING HOT WATER PUMP ENABLED DUE TO LOW DP ALARM: THE LAG HEATING HOT WATER PUMP SHALL ENABLE WHEN THE HOT WATER DP IS 4PSI (ADJ.) BELOW SETPOINT FOR 15 MIN. (ADJ.). WHEN MULTIPLE SECONDARY PUMPS ARE ENABLED THEY SHALL RECEIVE THE SAME SPEED OUTPUT FROM THE BAS.

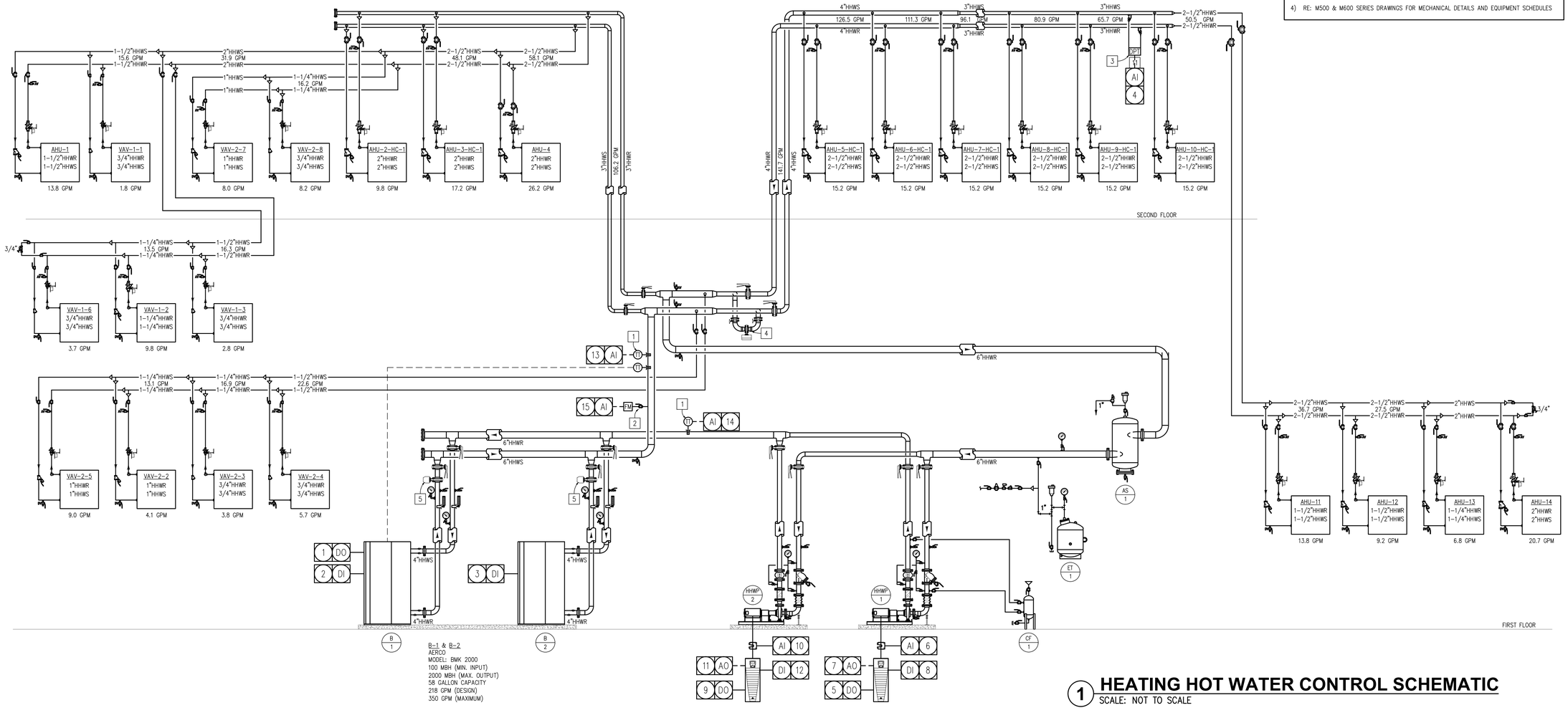
HEATING HOT WATER SYSTEM SEQUENCE OF OPERATION (CONT.)

H. HEATING HOT WATER BYPASS – MINIMUM FLOW CONTROL: IF THE HOT WATER FLOW CALCULATED BY THE FLOW SENSOR IN THE HEATING HOT WATER PIPING READS BELOW MINIMUM BOILER FLOW REQUIREMENTS, SYSTEM BYPASS VALVE "HHW-BV-1" (LEAD) WILL OPEN AND MODULATE TO MAINTAIN MINIMUM FLOW THRU THE BOILER. IF AFTER 15 MIN, ADJUSTABLE, MINIMUM FLOW THRU THE BOILER IS NOT ACHIEVED, A LOW WATER FLOW ALARM SHALL BE SENT TO BAS.

I. BOILER FAILURE: IMMEDIATELY UPON A FAILURE ALARM SIGNAL AS DETECTED AT THE OPERATING CHILLER ALARM CONTACTS, THE BMS SHALL GENERATE A CHILLER FAILURE ALARM.

J. HEATING HOT WATER TEMPERATURE ALARMS: THE BAS SHALL PROVIDED THE FOLLOWING HEATING HOT WATER TEMPERATURE ALARMS:
1. HIGH HEATING HOT WATER SUPPLY TEMPERATURE: IF THE HEATING HOT WATER SUPPLY TEMPERATURE IS 10degF (ADJ.) ABOVE THE BOILER LEAVING WATER SETPOINT FOR 15 MIN. (ADJ.) WITH A HYSTERESIS OF 1degF (ADJ.).
2. LOW HEATING HOT WATER SUPPLY TEMPERATURE: IF THE HEATING HOT WATER SUPPLY TEMPERATURE IS 10degF (ADJ.). BELOW THE LEAVING SETPOINT FOR 15 MIN. (ADJ.) WITH A HYSTERESIS OF 1degF (ADJ.).

K. NATURAL GAS PRESSURE SWITCH ALARM: GENERATE A HIGH/LOW GAS PRESSURE ALARM AT THE BAS UPON INDICATION FROM BOILER INTERFACE. SWITCHING TO PROPANE GAS IS A MANUAL OPERATION.



1 HEATING HOT WATER CONTROL SCHEMATIC

SCALE: NOT TO SCALE

KEY NOTES:

1. PROVIDE TEMPERATURE SENSOR IN HEATING HOT WATER. TEMPERATURE SENSOR WELL SHALL BE PROVIDED BY CONTRACTOR. FIELD VERIFY EXACT LOCATION AND COORDINATE WITH CONTRACTOR.
2. PROVIDE DUAL TURBINE FLOW METER ONICON F-1200 OR APPROVED EQUAL. DEVICE SHALL BE INSTALLED BY CONTRACTOR. COORDINATE WITH MECHANICAL CONTRACTOR.
3. PROVIDE DIFFERENTIAL PRESSURE TRANSMITTER IN LOCATION SHOWN BY CONTRACTOR. FIELD VERIFY EXACT LOCATION. MOUNT TRANSMITTER IN ACCESSIBLE LOCATION. COORDINATE WITH MECHANICAL CONTRACTOR.
4. PROVIDE 2" 2-WAY CHARACTERIZED BALL VALVE BYPASS VALVE WITH A 46 Cv AND N.O. ELECTRONIC SPRING RETURN ACTUATOR. BASIS OF DESIGN BELIMO B2 CCV. FIELD VERIFY EXACT LOCATION. COORDINATE WITH MECHANICAL CONTRACTOR.
5. BOILER ISOLATION CONTROL VALVE PROVIDED WITH BOILER AND CONTROLLED BY BOILER MASTER CONTROLLER.

GENERAL NOTES:
1) RE: BA001 FOR GENERAL NOTES & SYMBOLS.
2) RE: BA100 SERIES DRAWINGS FOR MECHANICAL PLANS INDICATING SENSOR LOCATIONS, ETC.
3) RE: BA500 FOR BUILDING AUTOMATION NETWORK RISER DIAGRAM.
4) RE: M500 & M600 SERIES DRAWINGS FOR MECHANICAL DETAILS AND EQUIPMENT SCHEDULES

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

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CURTIS L. BRUNGARDT
3-21-2023
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PROFESSIONAL ENGINEER

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SHEET NUMBER:

BA702

80 OF 111 SHEETS
MARCH 21, 2023

DDC POINTS LIST SUMMARY - CHILLER INTEGRATION

#	CONTROL POINTS	DDC HARD WIRED POINTS: DIGITAL INPUTS	DIGITAL OUTPUTS	ANALOG INPUTS	ANALOG OUTPUTS	INTERFACE: READ DATA POINT	READ/WRITE DATA POINT	GUI APPLICATION: TREND LOGGING	RUN TIME ACCUMULATION	OPERATION SCHEDULE	SCREEN DISPLAYED	USER OVERRIDE	ALARMING SCENARIOS: OUT OF RANGE	POINT STATUS	COMMAND FAILURE	CALCULATED EVENT	ALARM PRIORITIES: NOTIFICATION	MAINTENANCE	MAJOR	CRITICAL	SUPPLEMENTARY NOTES
1	ACTIVE CHWS SETPOINT					X		X			X										
2	ACTUAL CAPACITY					X		X			X										
3	ALARM DIGITAL OUTPUT					X		X			X			X				X			
4	CHILLER CURRENT					X		X			X										
5	CHILLER ENABLE OUTPUT					X		X			X										
6	CHILLER ON/OFF					X		X			X										
7	CHILLER STATUS					X		X			X										
8	COMPRESSOR SELECT					X		X			X										
9	CLEAR ALARM – NETWORK					X		X			X										
10	COMP 1 CURRENT					X		X			X										
11	COMP 2 CURRENT					X		X			X										
12	COMP 1 DISCH. REFRIGERANT TEMPERATURE					X		X			X		X					X			
13	COMP 2 DISCH. REFRIGERANT TEMPERATURE					X		X			X		X					X			
14	COMPRESSOR PERCENT RLA					X		X			X										
15	COMP 1 POWER					X		X			X										
16	COMP 2 POWER					X		X			X										
17	COMP 1 RUN HOURS					X		X			X										
18	COMP 2 RUN HOURS					X		X			X										
19	COMP 1 STARTS					X		X			X										
20	COMP 2 STARTS					X		X			X										
21	COMP 1 SUCTION REFRIGERANT TEMPERATURE					X		X			X										
22	COMP 2 SUCTION REFRIGERANT TEMPERATURE					X		X			X										
23	COMP 1 VOLTAGE					X		X			X										
24	COMP 2 VOLTAGE					X		X			X										
25	COND 1 REFRIGERANT PRESSURE					X		X			X										
26	COND 2 REFRIGERANT PRESSURE					X		X			X										
27	COND 1 SAT. REFRIGERANT TEMPERATURE					X		X			X										
28	COND 2 SAT. REFRIGERANT TEMPERATURE					X		X			X										
29	COOL SETPOINT – NETWORK					X		X			X										
30	CURRENT ALARM DESCRIPTOR					X		X			X										
31	EVAPORATOR ENTERING FLUID TEMPERATURE					X		X			X		X					X			
32	EVAPORATOR FLOW SWITCH STATUS					X		X			X										
33	EVAPORATOR LEAVING FLUID TEMPERATURE					X		X			X		X					X			
34	EVAPORATOR REFRIGERANT PRESSURE					X		X			X										
35	EVAPORATOR SAT. REFRIGERANT TEMPERATURE					X		X			X										
36	OIL FEED PRESSURE CIRCUIT 1					X		X			X										
37	OIL FEED PRESSURE CIRCUIT 2					X		X			X										
38	OUTDOOR AIR TEMPERATURE					X		X			X										
39	RUN ENABLED					X		X			X										
40	TOTAL KILOWATTS					X		X			X										
41	VFD TEMP COMP 1					X		X			X										
42	VFD TEMP COMP 2					X		X			X										
43	COMP 1 MOTOR CASE TEMPERATURE					X		X			X										
44	COMP 1 MOTOR CASE TEMPERATURE					X		X			X										

#	EQUIPMENT CONTROLLED / MONITORED
1	CHILLER CH-1
2	
3	

NOTES:
1)

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
PROFESSIONAL ENGINEER

MEP ENGINEER:
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER
OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

BAS
POINTS LIST

SHEET NUMBER:

BA703

81 OF 111 SHEETS
MARCH 21, 2023

ELECTRICAL SYMBOLS

Symbol	Description
	EXISTING LIGHT FIXTURE
	LIGHT FIXTURE TO BE REMOVED.
"A"	1'x 4', LIGHT FIXTURE WITH FIXTURE TYPE DESIGNATION.
"AE"	1'x 4', LIGHT FIXTURE WITH FIXTURE TYPE DESIGNATION. THIS FIXTURE IS USED AS AN EMERGENCY FIXTURE.
"A"	1'x 4', LIGHT FIXTURE WITH FIXTURE TYPE DESIGNATION. THIS FIXTURE IS USED AS A NIGHT LIGHT. LIGHT CONTROLLED FROM BREAKER IN PANELBOARD.
"A"	2'x 4', LIGHT FIXTURE WITH FIXTURE TYPE DESIGNATION.
"AE"	2'x 4', LIGHT FIXTURE WITH FIXTURE TYPE DESIGNATION. FIXTURE TO BE USED AS AN EMERGENCY FIXTURE.
"EM"	EMERGENCY LIGHT WITH FIXTURE TYPE DESIGNATION.
"X"	COMBINATION EMERGENCY LIGHT AND EXIT LIGHT WITH FIXTURE TYPE DESIGNATION.
	WALL MOUNTED EMERGENCY LIGHT FIXTURE
	EMERGENCY LIGHT FIXTURE.
	WALL MOUNT INCANDESCENT OR HID LIGHT FIXTURE
	CEILING MOUNT INCANDESCENT OR HID LIGHT FIXTURE
	SURFACE MOUNTED EXIT LIGHT.
	CEILING MOUNTED EXIT LIGHT
$	LIGHT SWITCH, TOGGLE TYPE, SINGLE POLE, 20 AMP, 120-277 VOLT AC, HUBBELL CAT. NO. HBL1221W
$^3	3-WAY LIGHT SWITCH, TOGGLE TYPE, 20 AMP, 120-277 VOLT AC, HUBBELL CAT. NO. HBL1223W
$^4	4-WAY LIGHT SWITCH, TOGGLE TYPE, 20 AMP, 120-277 VOLT AC, HUBBELL CAT. NO. HBL1224
S^WP	
$^DC	LIGHT SWITCH DESIGNATED TO CONTROL DC POWERED LIGHT FIXTURE
$^T	LIGHT SWITCH WITH BUILT-IN TIMER DEVICE
$^M	MOTOR STARTING SWITCH RATED AT VOLTAGE DESIGNATED
$^LV	LOW VOLTAGE SWITCH. RE: E600 SERIES DRAWINGS FOR LIGHTING CONTROLS SUMMARY AND REQUIREMENTS
OC 1	OCCUPANCY SENSOR 277 VOLT AC, CEILING MOUNTED, 360 DEGREE MULTI-TECHNOLOGY, SENSORSWITCH CM PDT 10
OC 2	OCCUPANCY SENSOR 277 VOLT AC, CEILING MOUNTED, 360 DEGREE MULTI-TECHNOLOGY, SENSORSWITCH CM PDT 9
$^OC	LIGHT SWITCH WITH BUILT-IN OCCUPANCY SENSOR 277 VOLT AC, SINGLE POLE, SINGLE LOCATION CONTROL MULTI-TECHNOLOGY, SENSORSWITCH WSD PDT NGX
	REMOTE INDICATING LIGHT
FS	WATERFLOW ALARM SWITCH
VT	CONTROL VALVE TAMPER SWITCH
R	ADDRESSABLE RELAY
C	ADDRESSABLE CONTROL MODULE
M	ADDRESSABLE MONITORING MODULE
K	KNOX BOX
	PULL STATION
F	FIREFIGHTER'S PHONE JACK
	FIREFIGHTER'S 2-WAY COMMUNICATION HANDSET
##	HEAT DETECTOR ## INDICATES DEVICE ADDRESS
## E	HEAT DETECTOR (E INDICATES ELEVATOR RECALL) ## INDICATES DEVICE ADDRESS
##	SMOKE DETECTOR ## INDICATES DEVICE ADDRESS
## E	SMOKE DETECTOR (E INDICATES ELEVATOR RECALL) ## INDICATES DEVICE ADDRESS
## AC	SMOKE DETECTOR (AC INDICATES INSTALLED ABOVE CEILING) ## INDICATES DEVICE ADDRESS
## U	SMOKE DETECTOR (U INDICATES INSTALLED IN SUBFLOOR) ## INDICATES DEVICE ADDRESS
## P	SMOKE DETECTOR (P INDICATES PHOTOELECTRIC) ## INDICATES DEVICE ADDRESS
## I	SMOKE DETECTOR (I INDICATES IONIZATION) ## INDICATES DEVICE ADDRESS
##	DUCT MOUNTED SMOKE DETECTOR (SD=SUPPLY/RD=RETURN) ## INDICATES DEVICE ADDRESS
## F	FLAME DETECTOR ## INDICATES DEVICE ADDRESS
F	WALL MOUNTED AUDIBLE NOTIFICATION APPLIANCE
##	WALL MOUNTED VISIBLE NOTIFICATION APPLIANCE ## INDICATES CANDELA
##	WALL MOUNTED AUDIBLE/VISIBLE NOTIFICATION APPLIANCE, ## INDICATES CANDELA
F	CEILING MOUNTED AUDIBLE NOTIFICATION APPLIANCE
##	CEILING MOUNTED VISIBLE NOTIFICATION APPLIANCE, ## INDICATES CANDELA
##	CEILING MOUNTED AUDIBLE/VISIBLE NOTIFICATION APPLIANCE, ## INDICATES CANDELA
	NOTIFICATION APPLIANCE CIRCUIT END OF LINE RESISTOR
	KEYED BYPASS SWITCH

ELECTRICAL SYMBOLS

Symbol	Description
FACP	FIRE ALARM CONTROL PANEL
GAP	GRAPHIC ALARM PANEL
VFD	VARIABLE FREQUENCY DRIVE.
VSD	VARIABLE SPEED DRIVE.
CPT	CONTROL POWER TRANFORMER
LCD	LIQUID CRYSTAL DIPLAY MONITOR
LSM	LOAD SHARING MODULE
DVR	DIGITAL VOLTAGE REGULATOR
AOC	AUTOMATIC-OPEN-CLOSED CONTROL PANEL
DM	DIGITAL METER
	PANELBOARD, 277/480 VOLT, 3-PHASE, 4-WIRE
	PANELBOARD, 120/208 VOLT, 3-PHASE, 4-WIRE
	CONTROL PANEL.
	CONDUIT AND CIRCUITRY TO BE REMOVED.
	BRANCH CIRCUIT WIRING RUN IN CONCEALED CONDUIT WHERE POSSIBLE.
#xx	BRANCH CIRCUIT CONDUCTORS: GROUND, NEUTRAL, HOT (OR SWITCHED HOT) #12 AWG U.N.O. (#xx INDICATES REQUIRED WIRE SIZE IF OTHER THAN #12)
3 9LD	SINGLE BRANCH CIRCUIT HOME RUN IN SINGLE CONDUIT WITH PANELBOARD DESIGNATION AND CIRCUIT BREAKER No.
5 3 1 9LD	MULTIPLE BRANCH CIRCUIT HOME RUNS IN SINGLE CONDUIT WITH PANELBOARD DESIGNATION AND CIRCUIT BREAKER No. # OF ARROW HEADS EQUALS # OF HOMERUNS IN CONDUIT.
	BRANCH CIRCUIT UNDERFLOOR/BELOW GRADE CONDUIT
	#18 SHIELDED TWISTED (U.N.O.)
	LIGHTNING PROTECTION SYSTEM ROOF CONDUCTOR
	GROUNDING SYSTEM CONDUCTOR (BELOW GRADE)
	GROUNDING THERMOWELD CONNECTION (BELOW GRADE)
	BOLTED GROUND CONNECTION (BELOW GRADE)
	AIR TERMINAL FOR LIGHTNING PROTECTION SYSTEM
OR	GROUND ROD
	TERMINAL BLOCK
R	RELAY COIL
K	KIRK KEY INTERLOCK
	NON-FUSED DISCONNECT SWITCH.
F	FUSED DISCONNECT SWITCH.
	COMBINATION MOTOR STARTER/DISCONNECT SWITCH.
	DEDICATED SIMPLEX RECEPTACLE.
	DUPLEX CONVENIENCE RECEPTACLE
WP	WEATHER PROOF, GROUNDING TYPE DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER, 20 AMP AC, 125 VOLT, NEMA 20-R, HEAVY DUTY, HUBBELL CAT. NO. GF5362GY.
G	GROUNDING TYPE DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER, 20 AMP, 120 VOLT AC, NEMA 5-20 R, HEAVY DUTY, HUBBEL CAT. NO. GF5362GY.
WG	WEATHERPROOF, GROUNDING TYPE DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER, 20 AMP, 120 VOLT AC, NEMA 5-20 R, HEAVY DUTY, HUBBEL CAT. NO. GF5362GY.
K	RECEPTACLE LOCATED WITHIN CABINETRY KITCHEN EQUIPMENT. COORDINATE EXACT LOCATION WITH ARCHITECTURAL DETAILS AND CABINETS.
A	SPECIAL PURPOSE RECEPTACLE - WALL MOUNTED SUBSCRIPT LETTER INDICATES TYPE
	FOURPLEX CONVENIENCE RECEPTACLE
DCP-x	DOOR SECURITY CONTROL PANEL FOURPLEX RECEPTACLE. COORDINATE ELEVATION WITH SECURITY VENDOR.
TC	RECEPTACLE/DATA FOR TIME CLOCK. LOCATE AT 48" AFF. COORDINATE ELEVATION WITH OWNER.
CV	RECEPTACLE/DATA FOR CONNECT-VISION. LOCATE AT 72" AFF.
	RECEPTACLE FOR BUG LIGHT. SEE LIGHT FIXTURE SCHEDULE.
P	EMERGENCY STOP PUSHBUTTON
	MOTOR.
	MOTOR STARTER.
	COMBINATION MOTOR STARTER & DISCONNECT SWITCH.
	TRANSFORMER.
CM	CONTROL MODULE
CR / CR / CR	DOOR SECURITY CARD READER.
EA	EMBARRASSMENT ALARM.
ER	EXIT REQUEST PUSHBUTTON.
EL	ELECTRIFIED LOCKSET WITH INTERNAL EXIT REQUEST.
ES	END SWITCH.

ELECTRICAL SYMBOLS

Symbol	Description
J	JUNCTION BOX
J XX	FLOOR-MOUNT JUNCTION BOX - FP INDICATES FLOOR POWER BOX - FD INDICATES FLOOR DATA BOX
S	SPEAKER
	NORMALLY OPEN CONTACTS
	NORMALLY CLOSED CONTACTS
	SWITCH
	TWO-POSITION SELECTOR SWITCH
	THREE-POSITION SELECTOR SWITCH
	FUSE
	GROUNDING ELECTRODE
	RACK-OUT STYLE CIRCUIT BREAKER
E	ELECTRICALLY OPERATED CIRCUIT BREAKER
	BOLT-ON STYLE CIRCUIT BREAKER
	PLUG-IN STYLE CIRCUIT BREAKER
FC=xxx A	3-PHASE FAULT CURRENT CALCULATION POINT "xxx" INDICATES CALCULATED FAULT.
	TRANSFORMER
	END OF LINE RESISTOR.
	TELE/DATA OUTLET. PROVIDE (2) DATA & (1) PHONE AT EACH LOCATION, CAT 6E, 15" BOTTOM OF OUTLET U.N.O
	TELEPHONE OUTLET. PROVIDE (1) PHONE AT EACH LOCATION, CAT 6E, 15" BOTTOM OF OUTLET U.N.O.
	DATA OUTLET. PROVIDE (2) DATA AT EACH LOCATION, CAT 6E, 15" BOTTOM OF OUTLET U.N.O.
##	PLAN NOTE DESIGNATION.
	CONNECT TO EXISTING
CU X	EQUIPMENT DESIGNATION.
2 E10	SECTION/ELEVATION REFERENCE NUMBER. SECTION/ELEVATION SHEET NUMBER
A E3.3	WIRING CONTINUATION REFERENCE NUMBER WIRING CONTINUATION SHEET NUMBER

ELECTRICAL NOTATIONS

ARF	ABOVE RAISED FLOOR.
AFF	ABOVE FINISHED FLOOR.
UNO	UNLESS NOTED OTHERWISE
ICC	INDEPENDENT CONTROLS CONTRACTOR
	TWISTED SHIELDED PAIR
I/C	INDICATES SINGLE CONDUCTOR CABLE.
SBTC	SOLID BARE TINNED COPPER
EXST	DENOTES EXISTING EQUIPMENT
LSIG	LONG TIME, SHORT TIME, INSTANTANEOUS, AND GROUND FAULT CIRCUIT BREAKER TRIP SETTINGS
ST12	SHUNT TRIP, 120V, 1PH, 60 HZ
ST24	SHUNT TRIP, 24VAC
EO	ELECTRICALLY OPERATED
KK	KIRK KEY INTERLOCK
N.O.	NORMALLY OPEN
N.C.	NORMALLY CLOSED
CPT	CONTROL POWER TRANSFORMER
UNO	UNLESS NOTED OTHERWISE
PART	PARTIAL HOMERUN
"A" OR "*"	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATES DEVICE BOTTOM TO BE MOUNTED 4" ABOVE COUNTERTOP BACKSPASH.
"G"	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATES GROUND FAULT INTERRUPTER.
"I"	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATES ISOLATED
"TL"	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATES LOCKING OR TWIST-LOCK TYPE DEVICE.
"AG"	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATES INDICATES ABOVE COUNTER BACKSPLASH AND GROUND FAULT RECEPTACLE.
"WG"	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATES WEATHER-PROOF ENCLOSURE AND GROUND FAULT RECEPTACLE.
"WP"	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATES WEATHER-PROOF ENCLOSURE.
"XP"	THESE LETTERS ADJACENT TO ANY SYMBOL INDICATES EXPLOSION-PROOF ENCLOSURE.
60"	DIMENSIONS ADJACENT TO ANY SYMBOL INDICATES MOUNTING HEIGHT TO CENTERLINE OF DEVICE.
RE:1-E101	REFERENCE DESIGNATION SHEET NUMBER DETAIL/PLAN NUMBER

GENERAL NOTES:

1) THE SYMBOLS SHOWN ON THIS SHEET ARE A COMPLETE LIST OF SYMBOLS USED BY InSite Group, Inc. AND NOT ALL SYMBOLS OR ABBREVIATIONS MAY BE USED ON THIS PROJECT.

DEFINITIONS:

1. TO "FURNISH" IS TO SUPPLY AND DELIVER TO THE PROJECT SITE READY FOR UNLOADING. THE FURNISHER SHALL COORDINATE DELIVERY AND NEGOTIATE UNLOADING WITH INSTALLER. UNLESS STATED OTHERWISE, FURNISHED PRODUCTS AND MATERIALS SHALL BE NEW.
2. TO "INSTALL" IS TO UNLOAD, UNPACK, ASSEMBLE, ERECT, PLACE, ANCHOR, APPLY, WORK TO DIMENSION, FINISH, CURE, PROTECT, CLEAN, INTERFACE TO SERVICES, AND OTHERWISE MAKE COMPLETE AND READY FOR INTENDED USE.
3. TO "PROVIDE" IS TO "FURNISH" AND "INSTALL" AS DEFINED ABOVE.
4. TO "REINSTALL" IS TO CLEAN, REFURBISH TO FULL FUNCTIONALITY, REASSEMBLE, ERECT, PLACE, ANCHOR, FINISH, PROTECT, INTERFACE TO SERVICES, AND OTHERWISE MAKE COMPLETE AND READY FOR INTENDED USE.
5. TO "SALVAGE" IS TO REMOVE BY DECONSTRUCTING IN A CONTROLLED MANNER LEAVING PRODUCT OR MATERIAL UNDAMAGED AND READY FOR REUSE. BEFORE PROCEEDING WITH SALVAGE OPERATION, INSPECT CONDITION AND TEST FUNCTIONALITY OF PRODUCTS AND MATERIALS TO BE SALVAGED; AND INSPECT CONDITION OF ADJACENT PRODUCTS AND SURFACES NOT SLATED FOR DEMOLITION. REPORT EXISTING DEFICIENCIES OR DAMAGE AND WAIT FOR RESPONSE BEFORE PROCEEDING. IF DAMAGED WHILE SALVAGING, PRODUCT OR MATERIAL SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE.
6. TO "DEMOLISH" IS TO REMOVE WITHOUT REGARD TO CONDITION OF PRODUCT OR MATERIAL, AND RECYCLE OR LAWFULLY DISPOSE OFF-SITE AS WASTE. CONTRACTOR MAY OPT TO SALVAGE AND TAKE OWNERSHIP, BUT THE ADDITIONAL COSTS ASSOCIATED WITH SALVAGE EFFORT SHALL BE BORNE BY CONTRACTOR. BEFORE PROCEEDING WITH DEMOLITION OPERATION, INSPECT CONDITION OF ADJACENT PRODUCTS AND SURFACES NOT SLATED FOR DEMOLITION. REPORT EXISTING DAMAGE AND WAIT FOR RESPONSE BEFORE PROCEEDING. IF DAMAGED DURING DEMOLITION, ADJACENT PRODUCTS AND SURFACES SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE.
7. TO "CUT" IS TO REMOVE IN-PLACE CONSTRUCTION AS NECESSARY FOR EXECUTION OF SPECIFIED OR INDICATED WORK.
8. TO "PATCH" IS TO FIT, REPAIR AND REFINISH CONSTRUCTION AS NECESSARY FOR RESTORATION TO ORIGINAL CONDITIONS, AND FIRE AND SMOKE RATING.
9. "CIRCUITRY" AND A "CIRCUIT" IS A COMPLETE SYSTEM FOR CONVEYING ELECTRICITY INCLUDING CONDUCTORS, WIRES, CABLES, CONNECTORS, SPLICES, LUGS, CONDUIT, RACEWAYS, FITTINGS, COUPLINGS, PULL BOXES, SWITCHES, CIRCUIT BREAKERS, PENETRATION SEALING SYSTEMS, HANGERS, CLAMPS, SUPPORTS, FASTENERS, ANCHORS, PAINT, AND LABELS AS SPECIFIED IN SPECIFICATIONS, INDICATED ON DRAWINGS OR REQUIRED BY APPLICABLE CODES AND STANDARDS FOR THE LOCATION AND APPLICATION.
10. TO "CIRCUIT" IS TO PROVIDE "CIRCUITRY" OR A "CIRCUIT" AS DEFINED ABOVE.
11. WITH RESPECT TO POWER CIRCUITRY DEMOLITION, THE "SOURCE" FOR A LOAD IS THE OVER-CURRENT PROTECTION DEVICE OR TAP THAT ORIGINATES THE CIRCUIT DEDICATED TO EXCLUSIVELY SERVING THE SPECIFIC LOAD.

COMPLIANCE:

1. APPLICABLE CODES, STANDARDS AND REGULATIONS:
   - A. OSHA 29 CFR 1910 - OCCUPATIONAL SAFETY AND HEALTH STANDARDS
   - B. OSHA 29 CFR 1926 - SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION
   - C. INTERNATIONAL BUILDING CODE (IBC), 2009
   - D. INTERNATIONAL FIRE CODE (IFC), 2009
   - E. INTERNATIONAL ENERGY CONSERVATION CODE (IEEC), 2018
   - F. NFPA 70 - NATIONAL ELECTRICAL CODE, 2009
   - G. NFPA 72 - NATIONAL FIRE ALARM AND SIGNALING CODE, 2009
   - H. NFPA 101 - LIFE SAFETY CODE, 2009
   - I. NFPA 110 - EMERGENCY AND STANDBY POWER SYSTEMS, 2009
   - J. FCIA FIRESTOP MANUAL OF PRACTICE
2. PERFORM WORK IN ACCORDANCE WITH THE ABOVE AND ALL OTHER APPLICABLE FEDERAL, STATE AND LOCALLY ADOPTED CODES, STANDARDS AND REGULATIONS.
3. THE RESULTING FACILITY SHALL BE A SAFE WORK PLACE IN CONFORMANCE WITH OSHA 29 CFR 1910.
4. A COMPLETE LIST OF SYMBOLS AND ABBREVIATION USED BY InSite Group, Inc. ARE SHOWN ON THIS SHEET. NOT ALL SYMBOLS OR ABBREVIATIONS MAY BE USED ON THIS PROJECT.
5. DRAWINGS ARE SCHEMATIC IN NATURE AND ARE INTENDED TO DEPICT GENERAL SCOPE OF PROJECT.
6. DRAWINGS, SPECIFICATIONS, REFERENCED STANDARDS, AND SO FORTH ARE COMPLIMENTARY OF ONE ANOTHER. IN THE EVENT OF CONFLICTING REQUIREMENTS, THE ARCHITECT/ENGINEER SHALL BE CONTACTED FOR RESOLUTION.
7. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. NOTIFY AE PROJECT MANAGER OF ANY DISCREPANCIES. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS, BENDS, ELBOWS, AND SO FORTH WHICH MAY BE REQUIRED FOR PROPER INSTALLATION OF WORK. PROVIDE ADDITIONAL BENDS AND OFFSETS AS REQUIRED TO COMPLETE WORK AT NO ADDITIONAL COST TO OWNER.
8. EACH BIDDER SHALL INSPECT SITE FOR EXISTING CONDITIONS. FAILURE TO OBTAIN SUCH KNOWLEDGE SHALL NOT RELIEVE THE SUCCESSFUL BIDDER OF RESPONSIBILITY FOR ACCOMMODATIONS WITH THESE CONDITIONS AND PERFORMING WORK UNDER THIS CONTRACT.

DEMOLITION, CUTTING, PATCHING AND PENETRATIONS:

1. EXISTING EQUIPMENT, APPLIANCES, DEVICES, DUCTWORK, PIPING, CONDUIT, CIRCUITRY, AND SO FORTH NOT BEING REUSED SHALL BE DEMOLISHED IN THEIR ENTIRETY BACK TO SOURCE. DEMOLISH CONDUITS AND BOXES LEFT EMPTY BY THE REMOVAL OF THEIR CIRCUITRY. CIRCUIT BREAKERS NO LONGER REQUIRED SHALL BE LABELED AS SPARES. CAP OR OTHERWISE COVER UNUSED BOX AND PANEL OPENINGS.
2. REMOVE OR MODIFY EXISTING EQUIPMENT, APPLIANCES, DEVICES, DUCTWORK, PIPING, CONDUIT, CIRCUITRY, AND SO FORTH AS REQUIRED TO ACCOMMODATE CONSTRUCTION. REINSTALL AND RECONNECT AFFECTED EXISTING-TO-REMAIN SYSTEMS.
3. NEATLY CUT AND SEAL OPENINGS AND PENETRATIONS FOR AN AIR-TIGHT ASSEMBLY.
4. PATCH AND PAINT PENETRATIONS AND FLAWS RESULTING FROM OR REVEALED BY THE REMOVAL OF EQUIPMENT, APPLIANCE, DEVICES, DUCTWORK, PIPING, AND SO FORTH WITH MATERIALS MATCHING ADJACENT SURFACE.
5. PROVIDE ESCUTCHEON PLATES AT FINISHED WALL PIPING AND CONDUIT PENETRATIONS.
6. SEAL EXTERIOR PENETRATIONS WEATHER TIGHT.
7. CAULK AROUND FLOOR SLAB PENETRATIONS WITH 3M CP-25 FIRE BARRIER CAULK (THICKNESS AS REQUIRED AND RECOMMENDED BY MANUFACTURER) TO PROVIDE FIRE STOP AT FLOOR SLAB.
8. MAINTAIN FIRE-RATED ASSEMBLIES:
   - A. ALL FIRE RATED ASSEMBLIES SHALL BE MAINTAINED IN ACCORDANCE STANDARDS.
   - B. MAINTAIN FIRE-RATED ASSEMBLIES WITH FIRE STOPS AT MEMBRANE AND ASSEMBLY PENETRATIONS:
     - FABRICATE AND INSTALL FIRE-STOP ACCORDING TO AN APPROPRIATE DETAIL IN THE UL FIRE RESISTANCE DIRECTORY, OR
     - PROVIDE UL-LISTED FIRE-STOP KIT.
   - C. FABRICATE, INSTALL AND LABEL FIRE-STOPS IN ACCORDANCE WITH FCIA FIRESTOP MANUAL OF PRACTICE.
   - D. UTILIZE 3M CP-25 FIRE-BARRIER CAULK WITH THICKNESS AS RECOMMENDED BY 3M OR AS REQUIRED BY UL DETAIL.

GENERAL PHASING SEQUENCE

1) INSTALL CH-1, B-1, B-2, AND ASSOCIATED EQUIPMENT LOCATED IN BOILER ROOM(AIR SEPARATOR, PUMPS, ETC.)
2) INSTALL CHILLED WATER AND HOT WATER MAIN HEADER PIPING AND ASSOCIATED VALVES AND TAPS.
3) ROUGH-IN ELECTRICAL AND CONTROLS FOR UNITS.
4) REMOVE AHU-K THRU AHU-P AND ASSOCIATED CONDENSING UNITS.
5) INSTALL AHU-1.
6) INSTALL VAV-1-1 THRU VAV-1-6.
7) REMOVE AC-1.
8) INSTALL NEW AC-1.
9) REMOVE AHU-A AND ASSOCIATED CONDENSING UNITS.
10) INSTALL AHU-2.
11) REMOVE MAU-1 AND MAU-2.
12) INSTALL NEW MAU-1 AND MAU-2.
13) REMOVE AHU-B.
14) INSTALL AHU-3.
15) REMOVE AHU-C THRU AHU-J.
16) INSTALL AHU-4.
17) INSTALL VAV-2-1 THRU VAV-2-8.
18) REMOVE HOUSING AHU UNITS SEQUENTIALLY AND INSTALL NEW AHU BEFORE REMOVING NEXT UNIT (IE. REMOVE AHU-Q, INSTALL AHU-5, THEN REMOVE AHU-R).
16) REMOVE MEZZANINE AHU UNITS SEQUENTIALLY AND INSTALL NEW AHU BEFORE REMOVING NEXT UNIT (IE. REMOVE AHU-15, INSTALL AHU-11, THEN REMOVE AHU-16).
17) INSTALL AC-2 AND AC-3.

EQUIPMENT:

1. EQUIPMENT SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY APPROVED BY OSHA.
2. THE CONTRACTOR SHALL STORE AND PROTECT FROM DAMAGE ALL EQUIPMENT AND MATERIALS AFTER DELIVERY TO THE JOB SITE. COVER WITH WATERPROOF, TEAR-RESISTANT, HEAVY TARP OR POLYETHYLENE PLASTIC AS REQUIRED TO PROTECT FROM PLASTER, DIRT, PAINT, WATER, OR PHYSICAL DAMAGE.
3. INSTALL EQUIPMENT WHILE MAINTAINING CLEARANCES AS RECOMMENDED BY MANUFACTURER AND REQUIRED BY APPLICABLE CODES AND STANDARDS.
4. FOREIGN SYSTEMS CANNOT BE LOCATED WITHIN EQUIPMENT SPACE DEDICATED TO ELECTRICAL SWITCHBOARDS, SWITCHGEAR, PANELBOARDS, AND MOTOR CONTROL CENTERS. FOREIGN SYSTEMS MAY BE LOCATED ABOVE THIS EQUIPMENT WHERE EQUIPMENT IS PROTECTED FROM CONDENSATION, LEAKS AND BREAKS. REFER TO NEC 110.26(E).
5. PROVIDE CONNECTIONS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND APPLICABLE CODES AND STANDARDS. COORDINATE CONNECTION REQUIREMENTS FOR FINAL EQUIPMENT SELECTIONS WITH OTHER AFFECTED TRADES.
6. VERIFY FINAL CONNECTION SIZES WITH MANUFACTURER EQUIPMENT AND PROVIDE REQUIRED ISOLATION VALVES, CHECK VALVES, UNIONS, GAUGES, AND SO FORTH FOR A COMPLETE INSTALLATION.
7. PROVIDE ELECTRICAL CIRCUITS AND OVER-CURRENT PROTECTION IN ACCORDANCE WITH MANUFACTURER'S NAMEPLATE.
8. MATCH TYPE, SIZE AND MATERIAL OF EXISTING PIPING, DEVICES, AND SO FORTH, WHERE APPLICABLE.
9. PROVIDE NECESSARY HARDWARE FOR A COMPLETE WORKING INSTALLATION OF EQUIPMENT, APPLIANCE, DEVICES, DUCTWORK, PIPING, CIRCUITRY, AND SO FORTH.
10. PROVIDE ENGRAVED PLASTIC LAMINATE NAMEPLATES ON AFFECTED NEW AND EXISTING EQUIPMENT. SURVEY BUILDING TO ENSURE THAT NAMES ARE UNIQUE AND CONSISTENT WITH EXISTING CONVENTIONS.
11. DRAWINGS ARE DESIGNED FOR THE MANUFACTURER'S MATERIALS, EQUIPMENT, OR SERVICES NAMED ON PLANS AND ANY CHANGES AND THEIR ASSOCIATED COSTS REQUIRED TO ACCOMMODATE OTHER APPROVED EQUIVALENT MATERIAL OR EQUIPMENT AS WELL AS SPACE REQUIREMENTS FOR THE OTHER APPROVED EQUIVALENT MUST BE ASSUMED BY THE CONTRACTOR.

MEP GENERAL NOTES:

1. COORDINATE ALL WORK WITH OWNER, ENGINEER, EQUIPMENT MANUFACTURERS, AND ALL OTHER TRADES.
2. THE OWNER AND ENGINEER ARE NOT RESPONSIBLE FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR TO MEANS, METHODS, TECHNIQUES, CONSTRUCTION SEQUENCES, OR PROCEDURES REQUIRED TO PERFORM HIS/HER WORK
3. OWNER EQUIPMENT LAYOUT IS SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS OF EQUIPMENT.
4. MAINTAIN AREAS FREE OF DEBRIS ACCUMULATION. KEEP WORK AREAS NEAT AND ORDERLY AS MUCH AS REASONABLY POSSIBLE.
5. SUBSTITUTIONS: ALL PRODUCTS PROPOSED FOR USE, INCLUDING THOSE SPECIFIED BY REQUIRED ATTRIBUTES AND PERFORMANCE, SHALL REQUIRE APPROVAL BY THE ENGINEER BEFORE BEING INCORPORATED INTO THE WORK. WHERE THE PHRASE "OR EQUAL" OR "APPROVED EQUAL" OCCURS IN THE CONTRACT DOCUMENTS, DO NOT ASSUME THAT MATERIALS, EQUIPMENT, OR METHODS WILL BE APPROVED AS EQUAL UNLESS THE ITEM HAS BEEN SPECIFICALLY APPROVED FOR THIS WORK BY THE ENGINEER / ARCHITECT.
6. SHOP DRAWINGS, SAMPLES, AND COORDINATION DRAWINGS: THE CONTRACTOR SHALL SUBMIT FOR APPROVAL, ELECTRONIC COPIES OF MANUFACTURER'S SHOP DRAWINGS FOR ALL MAJOR ITEMS OF EQUIPMENT TO BE FURNISHED UNDER THIS CONTRACT, AND ALL MAJOR ITEMS REQUIRING COORDINATION BETWEEN CONTRACTORS. BEFORE SUBMITTING SHOP DRAWINGS AND MATERIAL LISTS, VERIFY THAT ALL THE EQUIPMENT IS MUTUALLY COMPATIBLE AND SUITABLE FOR INTENDED USE, AND SHALL FIT THE AVAILABLE SPACE AND ALLOW AMPLE ROOM FOR MAINTENANCE. THE ENGINEER'S CHECKING AND SUBSEQUENT APPROVAL OF SUCH SHOP DRAWINGS SHALL NOT RELIEVE THE RESPONSIBILITY FOR ERRORS IN DIMENSIONS, DETAILS, SIZE OF MEMBERS, QUANTITIES, OMISSIONS OF COMPONENTS OR FITTINGS, OR FOR COORDINATING ITEMS WITH ACTUAL BUILDING CONDITIONS.
7. ACCEPTANCE OF THE WORK SHALL BE SUBJECT TO THE ENGINEERS APPROVAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. SHOP DRAWINGS SHALL INCLUDE MANUFACTURERS DETAIL DRAWINGS OF EQUIPMENT AND MATERIAL AND CONTRACTORS SHOP DETAILS FOR INSTALLATION OF MATERIAL AND EQUIPMENT. DESCRIPTIVE LITERATURE SHALL INCLUDE CATALOG DATA COVERING DESIGN, SIZE AND CAPACITY OF MATERIAL AND EQUIPMENT. SUBMITTALS SHALL INCLUDE THE MANUFACTURERS MODEL NUMBER, CAPACITY, PERFORMANCE DATA, ELECTRICAL CHARACTERISTICS, ETC., ALL CLEARLY SHOWN AND MARKED FOR THE SPECIFIC ITEM OF EQUIPMENT BEING FURNISHED ON THIS PROJECT.
8. RECORD DRAWINGS: THE CONTRACTOR SHALL KEEP DAY-TO-DAY RECORD OF ALL CHANGES OR VARIATIONS MADE FROM THE CONTRACT DOCUMENTS AND AT THE END OF THE PROJECT SHALL PROVIDE THE ENGINEER WITH REPRODUCIBLE SETS AS REQUESTED.

ELECTRICAL GENERAL NOTES:

1) DO NOT SCALE DRAWINGS:
   THE CONTRACTORS SHALL USE DIMENSIONS SHOWN ON THE DRAWINGS AND ACTUAL FIELD MEASUREMENT. NOTIFY THE AE PROJECT MANAGER IF ANY DISCREPANCIES ARE FOUND PRIOR TO PROCEEDING WITH WORK.
2) INSTALL ALL EQUIPMENT WHILE MAINTAINING ALL CLEARANCES PER EQUIPMENT MANUFACTURERS RECOMMENDATIONS AND PER LOCAL CODES.
3) VERIFY ALL DIMENSIONS & CONDITIONS IN THE FIELD. NOTIFY AE PROJECT MANAGER OF ANY DISCREPANCIES. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS, BENDS, ELBOWS, ETC., WHICH MAY BE REQUIRED FOR PROPER INSTALLATION OF WORK. PROVIDE ADDITIONAL BENDS AND/OR OFFSETS AS REQUIRED TO COMPLETE WORK AT NO ADDITIONAL COST.
4) HEIGHTS OF OUTLETS AND CONTROLS SHALL MEET ADA REQUIREMENTS AS FOLLOWS.
   - BOTTOM OF OUTLETS 15" AFF.
   - SWITCHES AND OTHER CONTROLS A MAXIMUM OF 48" AFF.
5) PROVIDE ENGRAVED NAMEPLATES ON ALL PANELBOARDS AND ALL BREAKERS ON DISTRIBUTION PANELS. ALSO PROVIDE ENGRAVED NAMEPLATES ON MAIN SERVICES DISCONNECT AND ALL MAJOR PIECES OF EQUIPMENT. NAMEPLATES SHALL BE PROVIDED PER OWNER'S STANDARDS REQUIREMENTS.
6) COORDINATE POWER REQUIREMENTS OF ALL EQUIPMENT, DEVICES, ETC. WITH FINAL EQUIPMENT SELECTION AND INSTALL ALL NECESSARY DEVICES ALLOWING FOR END TERMINATION/CONNECTIONS.
7) UPDATE ALL PANELBOARD SCHEDULES.
8) ALL EXPOSED DATA, TELEPHONE, COMMUNICATIONS, ETC. WIRING SHALL BE PLENUM RATED.
9) ALL GROUNDING CONDUCTORS SHALL BE SUPPORTED BY NONMETALLIC SUPPORTS OR METALLIC SUPPORTS THAT DO NOT COMPLETELY ENCIRCLE CONDUCTOR.
10) ALL COVER PLATES, RECEPTACLES, SWITCHES, ETC. SHALL BE WHITE IN COLOR.
11) FURNISH, INSTALL AND CONNECT ALL WIRE, WIREWAY, CONDUIT, CONNECTORS, OUTLETS, ETC. NECESSARY TO ACHIEVE A COMPLETE ELECTRICAL INSTALLATION. ALTHOUGH SUCH WORK IS NOT SPECIFICALLY SHOWN OR SPECIFIED EQUIPMENT SHALL BE INSTALLED PER CODE REQUIREMENTS PROVIDING A SOUND, SECURE AND COMPLETE INSTALLATION.
12) PROVIDE LABELS ON ALL NEW AND EXISTING CONDUITS, RECEPTACLES, LIGHT FIXTURES, SWITCHES, DAMPER ACTUATORS, MECHANICAL EQUIPMENT, ELECTRICAL EQUIPMENT, ETC. INDICATING PANELBOARD, VOLTAGE/PHASE, CIRCUIT BREAKER SIZE, AND CIRCUIT NUMBER FEEDING EQUIPMENT.
13) ALL EQUIPMENT EXPOSED TO WEATHER SHALL BE LISTED FOR EXTERIOR USE.
14) ROUTE ALL CIRCUITRY PARALLEL AND PERPENDICULAR TO BUILDING LINES & AS HIGH OR LOW AS POSSIBLE. ALL CIRCUITRY AND CONDUIT SHALL BE SIZED PER NEC REQUIREMENTS.
15) PROVIDE PULL BOXES FOR CONDUIT AND WIRE RUNS AS REQUIRED PER NEC. RE: NEC2005 SECTIONS 314 PULL AND JUNCTION BOXES AND CONDUIT BODIES, 358 BENDS-NUMBER IN ONE RUN.
16) LABEL ALL JUNCTION BOXES WITH CIRCUIT NUMBER SERVING THE JUNCTION BOX AND EQUIPMENT SERVED BY JUNCTION BOX CIRCUITRY PER SPECIFICATIONS.
17) PROVIDE COPPER LOW VOLTAGE CONDUCTORS FOR LISTED APPLICATIONS PER SPECIFICATIONS ON ES900 SERIES DRAWINGS.

    CONTROL VOLTAGE CABLES: PLENUM-RATED, PAIRED CABLE, ANY WIRE RUNS FURTHER THAN 6FT SHALL BE MIN. #18 AWG, NFPA 70, TYPE CMP, PVC INSULATION, PVC JACKET, FLAME RESISTANCE SHALL COMPLY WITH NFPA 262.

    OUTDOOR CONTROL VOLTAGE CABLES: CABLES SHALL BE TIA455-82B WATER INFILTRATION TEST COMPLIANT AND SHALL INCLUDE 2 PL WATER SWELLABLE TAPE AND SUNLIGHT/MOISTURE RESISTANCE PVC OVERALL JACKET AND BE RATED FOR TEMPERATURES FROM -20degC TO 60degC.
18) >50V AND <50V WIRING SHALL NOT BE ROUTED WITHIN SAME CONDUIT.
19) RE: ES900 SERIES DRAWINGS FOR ELECTRICAL SPECIFICATIONS.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
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DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION: ____
DATE: ____
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DATE: ____
ISSUE DATE: 03/21/2023

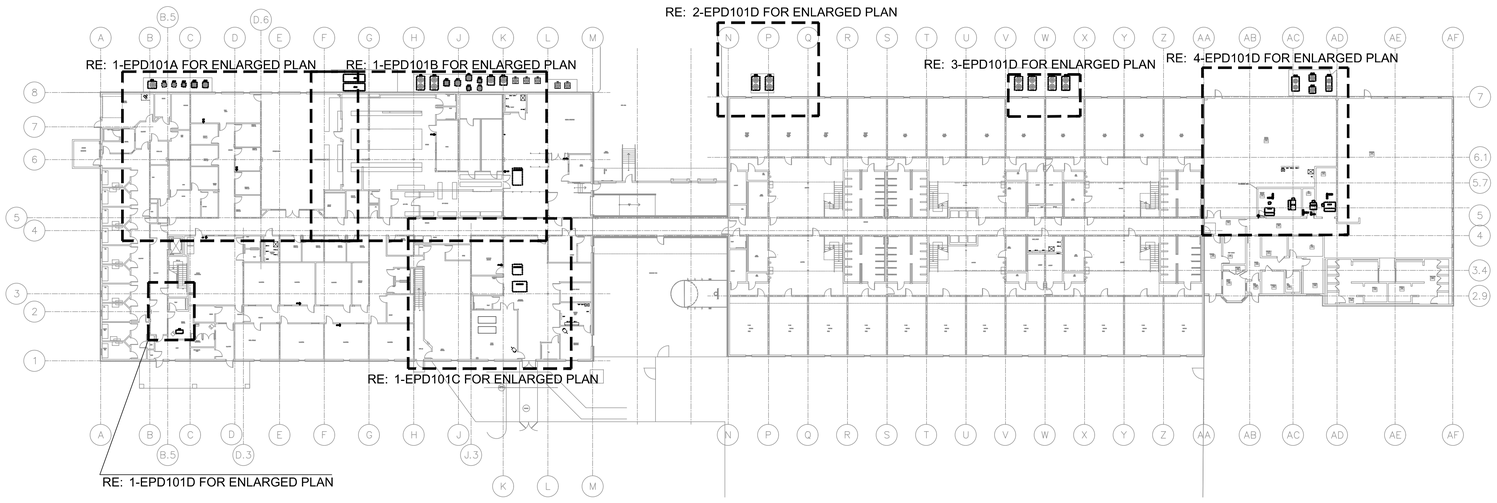
CAD DWG FILE: ____
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

ELECTRICAL SYMBOLS AND GENERAL NOTES

SHEET NUMBER:

E001



1 LEVEL 1 OVERALL ELECTRICAL POWER DEMO PLAN
SCALE: 1/32" = 1'-0"

STATE OF MISSOURI
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DRAWN BY: RJR
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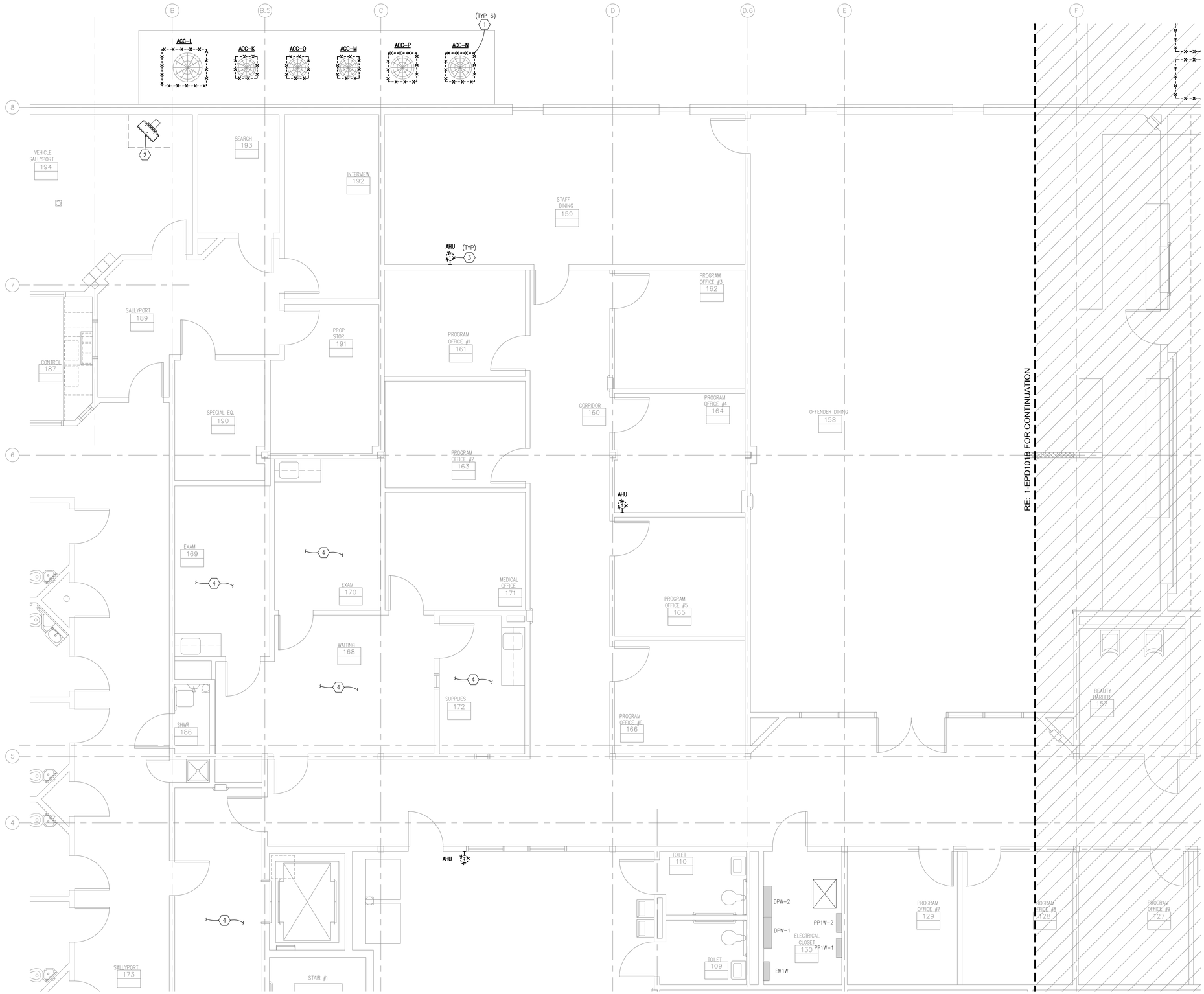
DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1 OVERALL ELEC POWER DEMO PLAN

SHEET NUMBER:

EPD101



1 **LEVEL 1 ELECTRICAL POWER DEMO PLAN**
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. EXISTING UNIT SCHEDULED TO BE REMOVED. REMOVE EXISTING UNIT DISCONNECT, AND ALL ASSOCIATED CONDUIT, AND WIRING BACK TO SOURCE.
2. EXISTING UNIT TO REMAIN.
3. EXISTING THERMOSTAT TO BE REMOVED. REMOVE EXISTING CONDUIT AND WIRING BACK TO SOURCE OR NEAREST UNIT TO REMAIN. CONTRACTOR TO UTILIZE EXISTING CONDUIT FOR NEW UNIT INSTALLATION WHERE APPLICABLE.
4. REMOVE AND RETAIN ALL EXISTING ELECTRICAL DEVICES INSTALLED IN THE EXISTING CEILING IN LOCATION SHOWN TO ALLOW FOR PIPING TO BE INSTALLED BY MECHANICAL CONTRACTOR. DEVICES TO BE REINSTALLED IN SAME LOCATION UNDER NEW WORK.

GENERAL NOTES:
1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS EPD600 SERIES FOR PANEL SCHEDULES.

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DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:
LEVEL 1
ELEC POWER
DEMO PLAN

SHEET NUMBER:
EPD101A

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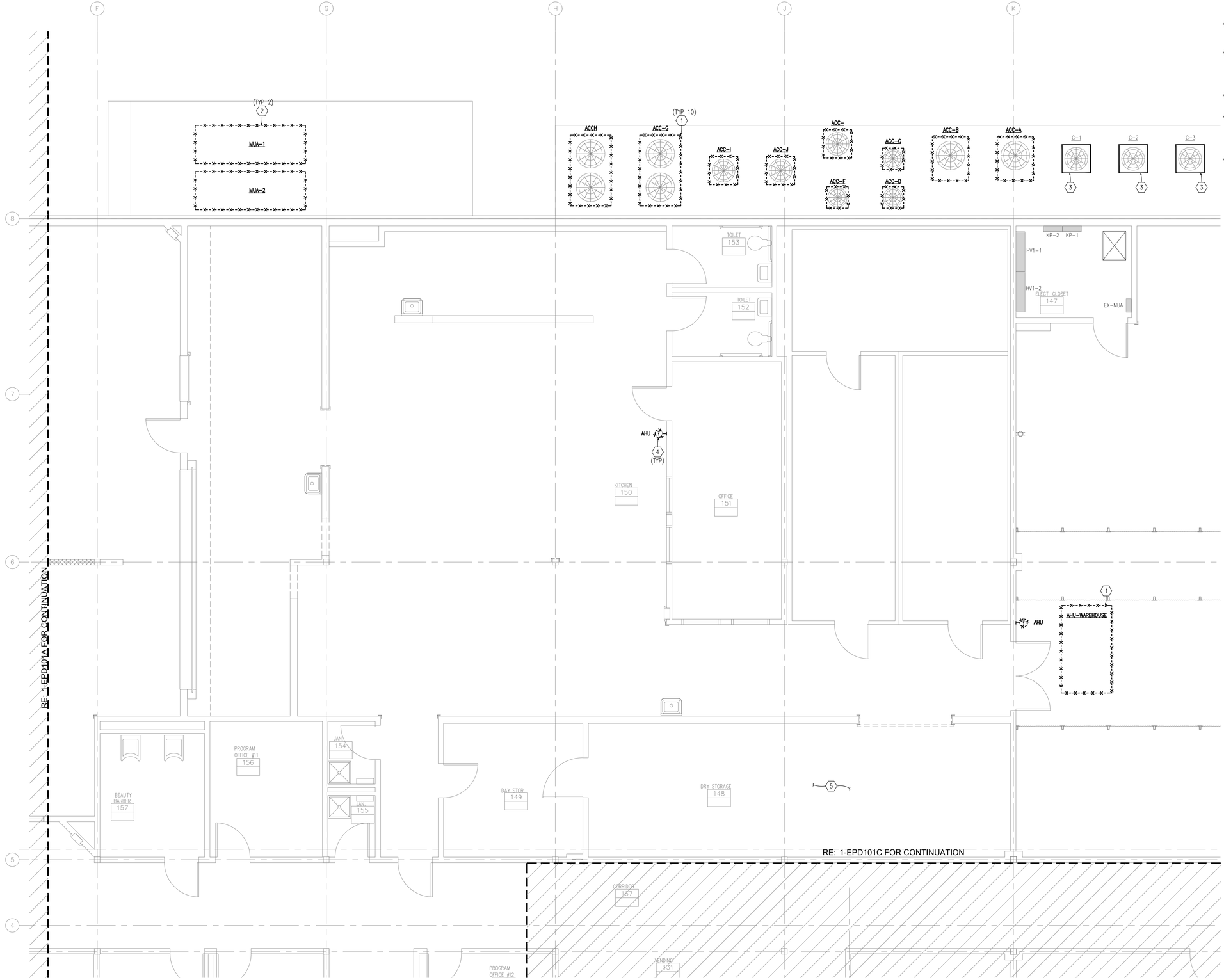
MARCH 21, 2023



1 LEVEL 1 ELECTRICAL POWER DEMO PLAN

SCALE: 1/8" = 1'-0"

KEYED NOTES:

1. EXISTING UNIT SCHEDULED TO BE REMOVED. REMOVE EXISTING UNIT DISCONNECT, AND ALL ASSOCIATED CONDUIT, AND WIRING BACK TO SOURCE.
2. UNIT SCHEDULED TO BE REMOVED. REMOVE EXISTING DISCONNECT AND ALL ASSOCIATED WIRING BACK TO SOURCE. EXISTING CONDUIT TO REMAIN FOR WIRING TO NEW UNITS. REFERENCE SHEET EP101B FOR NEW UNITS.
3. EXISTING CONDENSING UNITS AND ASSOCIATED DISCONNECT, CONDUIT AND WIRING TO REMAIN.
4. EXISTING THERMOSTAT TO BE REMOVED. REMOVE EXISTING CONDUIT AND WIRING BACK TO SOURCE OR NEAREST UNIT TO REMAIN. CONTRACTOR TO UTILIZE EXISTING CONDUIT FOR NEW UNIT INSTALLATION WHERE APPLICABLE.
5. REMOVE AND RETAIN ALL EXISTING ELECTRICAL DEVICES INSTALLED IN THE EXISTING CEILING IN LOCATION SHOWN TO ALLOW FOR PIPING TO BE INSTALLED BY MECHANICAL CONTRACTOR. DEVICES TO BE REINSTALLED IN SAME LOCATION UNDER NEW WORK.

GENERAL NOTES:

1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS EPD600 SERIES FOR PANEL SCHEDULES.

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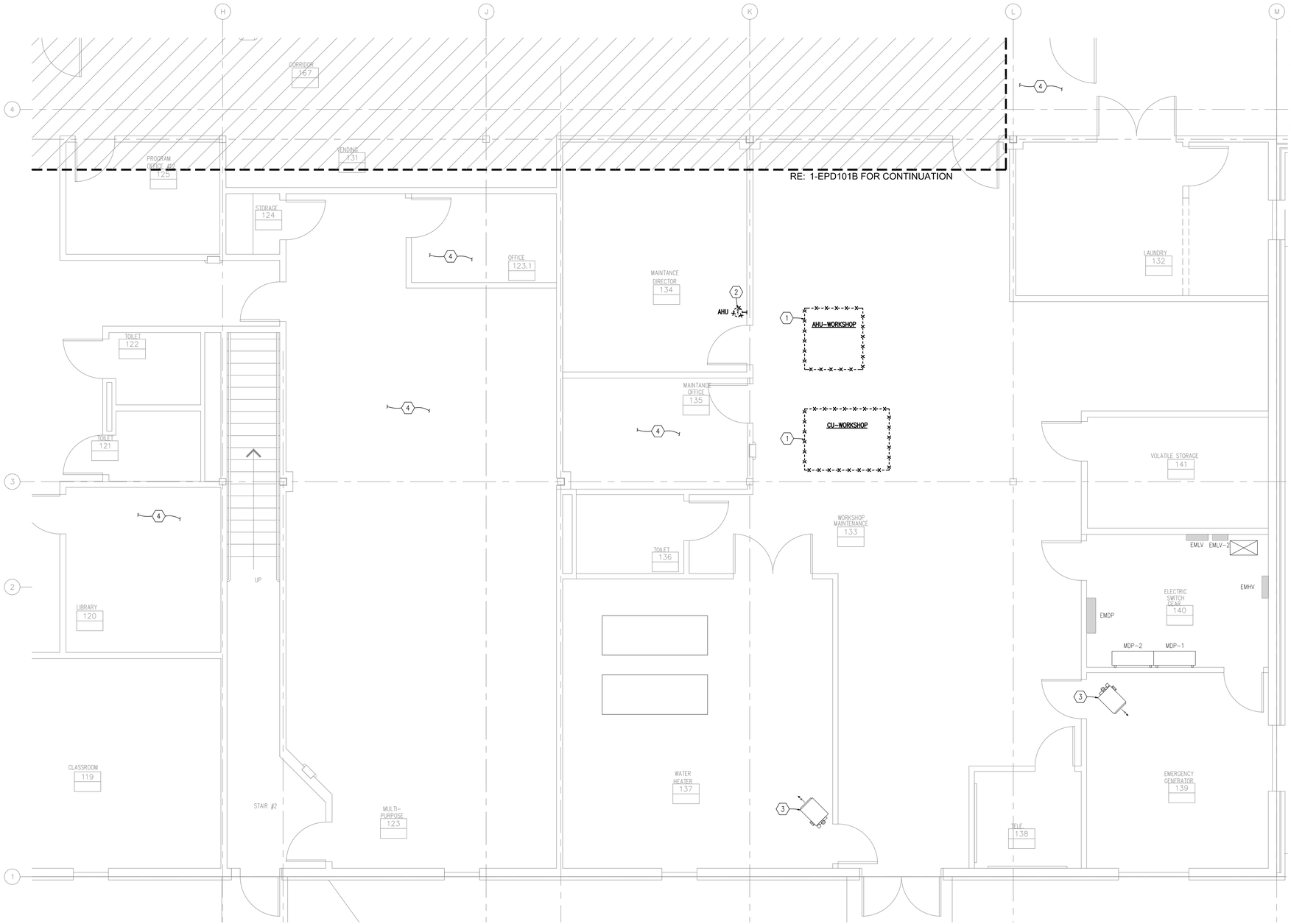
DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1
ELEC POWER
DEMO PLAN

SHEET NUMBER:

EPD101B



KEYED NOTES:

1. EXISTING UNIT SCHEDULED TO BE REMOVED. REMOVE EXISTING UNIT DISCONNECT, AND ALL ASSOCIATED CONDUIT, AND WIRING BACK TO SOURCE.
2. EXISTING THERMOSTAT TO BE REMOVED. REMOVE EXISTING CONDUIT AND WIRING BACK TO SOURCE OR NEAREST UNIT TO REMAIN. CONTRACTOR TO UTILIZE EXISTING CONDUIT FOR NEW UNIT INSTALLATION WHERE APPLICABLE.
3. EXISTING UNIT TO REMAIN.
4. REMOVE AND RETAIN ALL EXISTING ELECTRICAL DEVICES INSTALLED IN THE EXISTING TILE CEILING IN LOCATION SHOWN TO ALLOW FOR PIPING TO BE INSTALLED BY MECHANICAL CONTRACTOR. DEVICES TO BE REINSTALLED IN SAME LOCATION UNDER NEW WORK.

GENERAL NOTES:

1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS EPD600 SERIES FOR PANEL SCHEDULES.

1 LEVEL 1 ELECTRICAL POWER DEMO PLAN

SCALE: 1/4" = 1'-0"

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CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1
ELEC POWER
DEMO PLAN

SHEET NUMBER:

EPD101C

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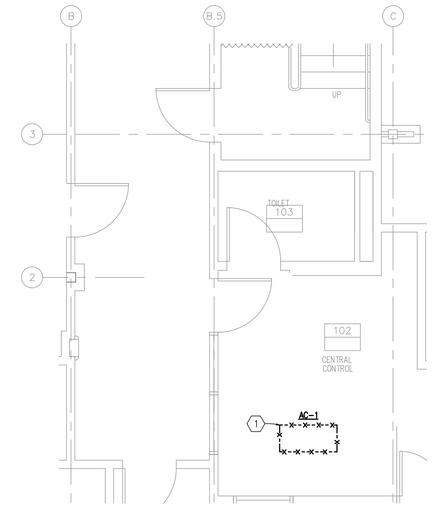
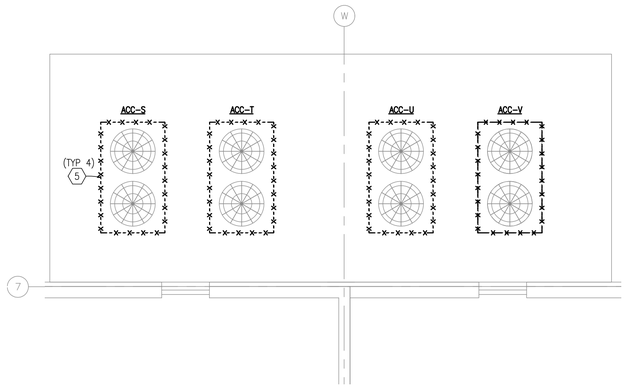
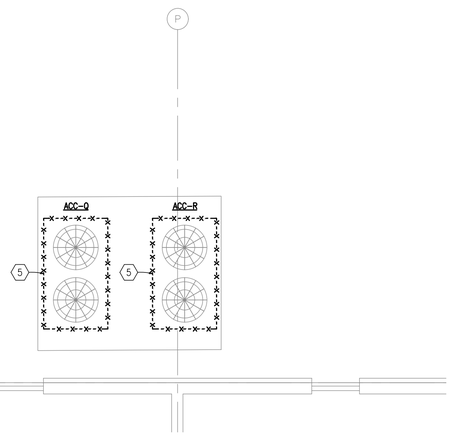
MARCH 21, 2023



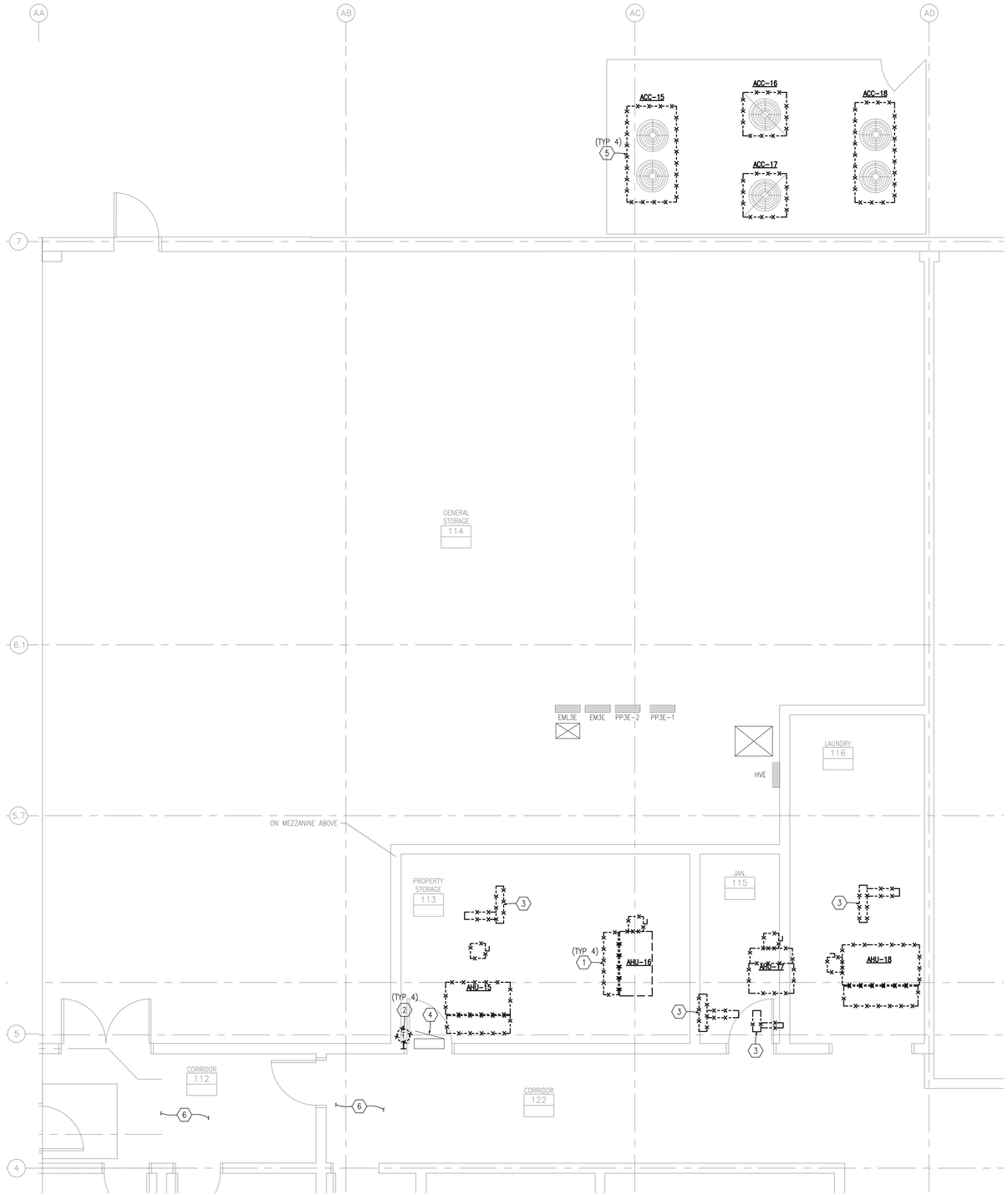
1 LEVEL 1 MECHANICAL HVAC DEMO PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 1 ELECTRICAL POWER DEMO PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 1 MECHANICAL HVAC DEMO PLAN
SCALE: 1/4" = 1'-0"



4 LEVEL 1 ELECTRICAL POWER DEMO PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. EXISTING UNIT SCHEDULED TO BE REMOVED. REMOVE EXISTING UNIT DISCONNECT, AND ALL ASSOCIATED CONDUIT, AND WIRING BACK TO SOURCE. CONTRACTOR TO UTILIZE EXISTING CONDUIT FOR NEW UNIT INSTALLATION WHERE APPLICABLE.
2. EXISTING THERMOSTAT TO BE REMOVED. REMOVE EXISTING CONDUIT AND WIRING BACK TO SOURCE OR NEAREST UNIT TO REMAIN.
3. EXISTING ELECTRIC DUCT HEATER TO BE REMOVED. REMOVE EXISTING CONDUIT, CONTROLS, AND WIRING BACK TO SOURCE OR NEAREST UNIT TO REMAIN. CONTRACTOR TO UTILIZE EXISTING CONDUIT FOR NEW UNIT INSTALLATION WHERE APPLICABLE.
4. EXISTING CONTROL PANEL HOUSING SHALL REMAIN AND BE UTILIZED FOR EXTENSION OF WIRING PER NEW WORK PLAN.
5. EXISTING UNIT SCHEDULED TO BE REMOVED. REMOVE EXISTING UNIT DISCONNECT, AND ALL ASSOCIATED CONDUIT, AND WIRING BACK TO SOURCE.
6. REMOVE AND RETAIN ALL EXISTING ELECTRICAL DEVICES INSTALLED IN THE EXISTING CEILING IN LOCATION SHOWN TO ALLOW FOR PIPING TO BE INSTALLED BY MECHANICAL CONTRACTOR. DEVICES TO BE REINSTALLED IN SAME LOCATION UNDER NEW WORK.

GENERAL NOTES:
1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS EPD600 SERIES FOR PANEL SCHEDULES.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

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3-21-2023
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CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:
LEVEL 1
ELEC POWER
DEMO PLAN

SHEET NUMBER:
EPD101D

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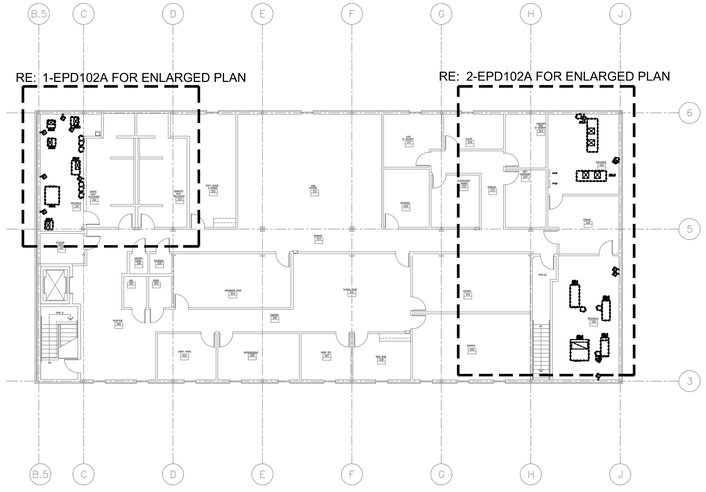
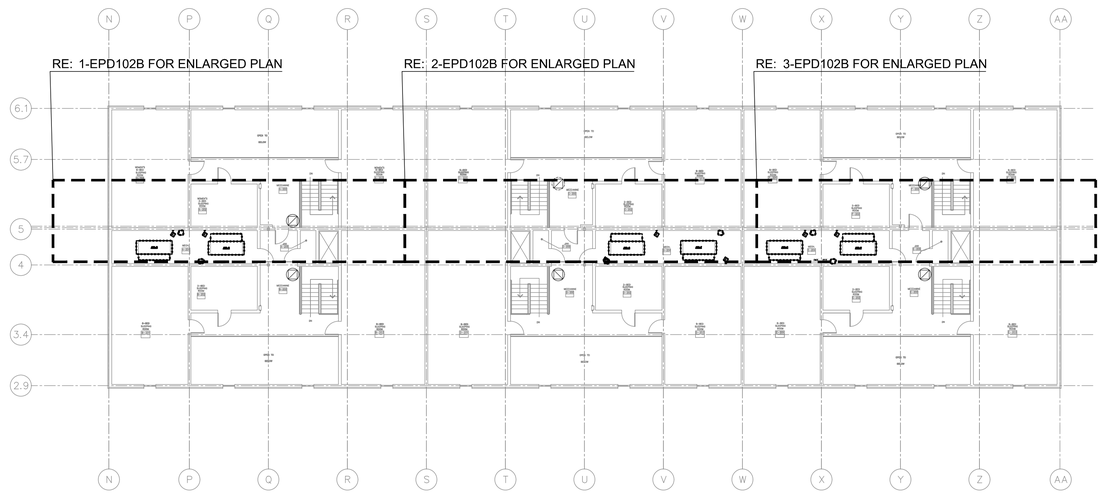
MARCH 21, 2023





1 LEVEL 2 OVERALL ELECTRICAL POWER DEMO PLAN

SCALE: 1/16" = 1'-0"

STATE OF MISSOURI
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DRAWN BY: RJR
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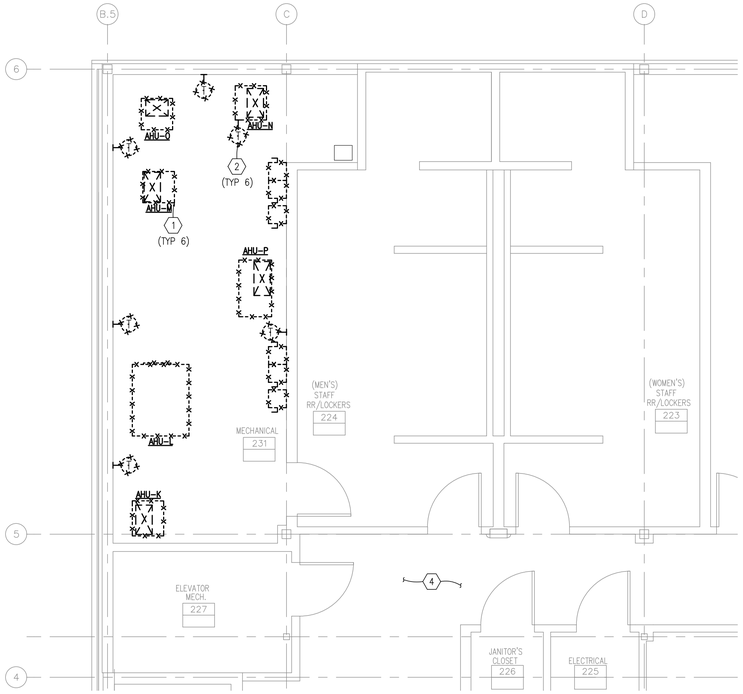
DESIGNED BY: MRB

SHEET TITLE:

LEVEL 2 OVERALL ELEC POWER DEMO PLAN

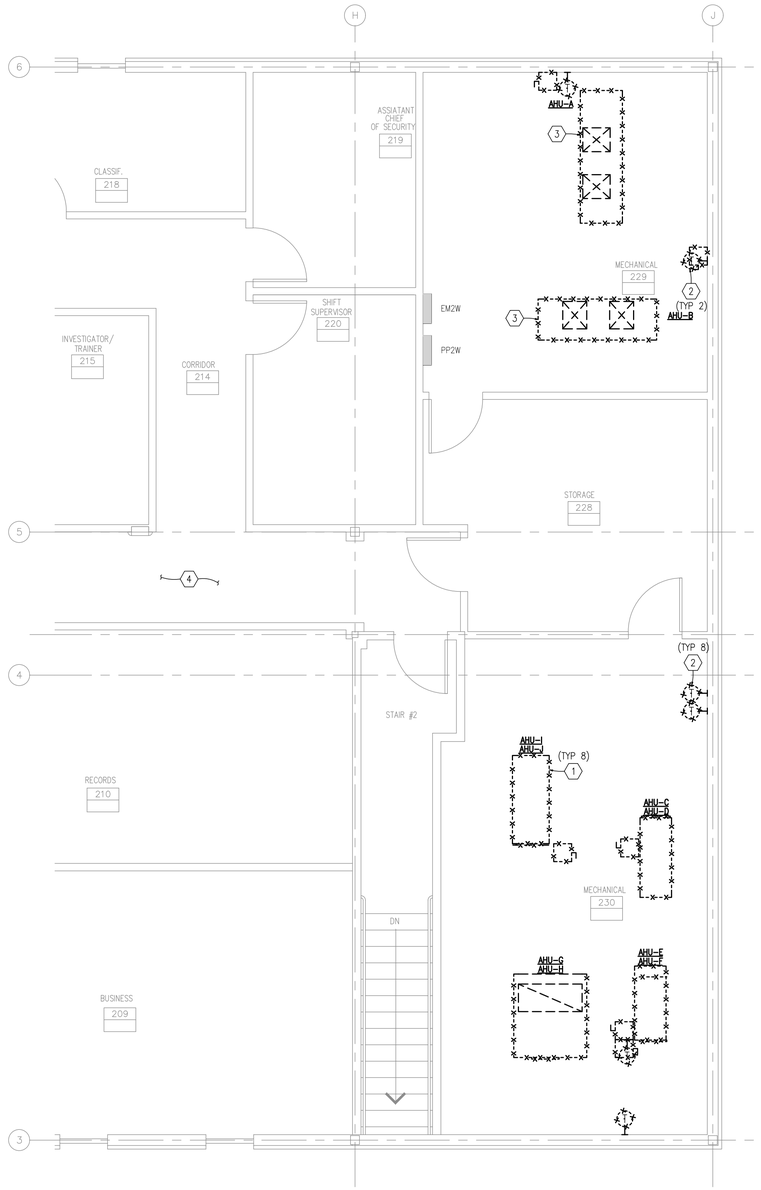
SHEET NUMBER:

EPD102



1 LEVEL 2 ELECTRICAL POWER DEMO PLAN

SCALE: 1/4" = 1'-0"



2 LEVEL 2 ELECTRICAL POWER DEMO PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. EXISTING UNIT SCHEDULED TO BE REMOVED. REMOVE EXISTING UNIT DISCONNECT, AND ALL ASSOCIATED CONDUIT, AND WIRING BACK TO SOURCE. CONTRACTOR TO UTILIZE EXISTING CONDUIT FOR NEW UNIT INSTALLATION WHERE APPLICABLE.
2. EXISTING THERMOSTAT TO BE REMOVED. REMOVE EXISTING CONDUIT AND WIRING BACK TO SOURCE OR NEAREST UNIT TO REMAIN. CONTRACTOR TO UTILIZE EXISTING CONDUIT FOR NEW UNIT INSTALLATION WHERE APPLICABLE.
3. UNIT SCHEDULED TO BE REMOVED. REMOVE EXISTING DISCONNECT AND ALL ASSOCIATED WIRING BACK TO SOURCE. EXISTING CONDUIT TO REMAIN FOR WIRING TO NEW UNITS. RE:EP102A FOR NEW UNITS. CONTRACTOR TO UTILIZE EXISTING CONDUIT FOR NEW UNIT INSTALLATION WHERE APPLICABLE.
4. REMOVE AND RETAIN ALL EXISTING ELECTRICAL DEVICES INSTALLED IN THE EXISTING CEILING IN LOCATION SHOWN TO ALLOW FOR PIPING TO BE INSTALLED BY MECHANICAL CONTRACTOR. DEVICES TO BE REINSTALLED IN SAME LOCATION UNDER NEW WORK.

GENERAL NOTES:

1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS EPD600 SERIES FOR PANEL SCHEDULES.

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3540 NE RALPH POWELL RD., STE. B
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

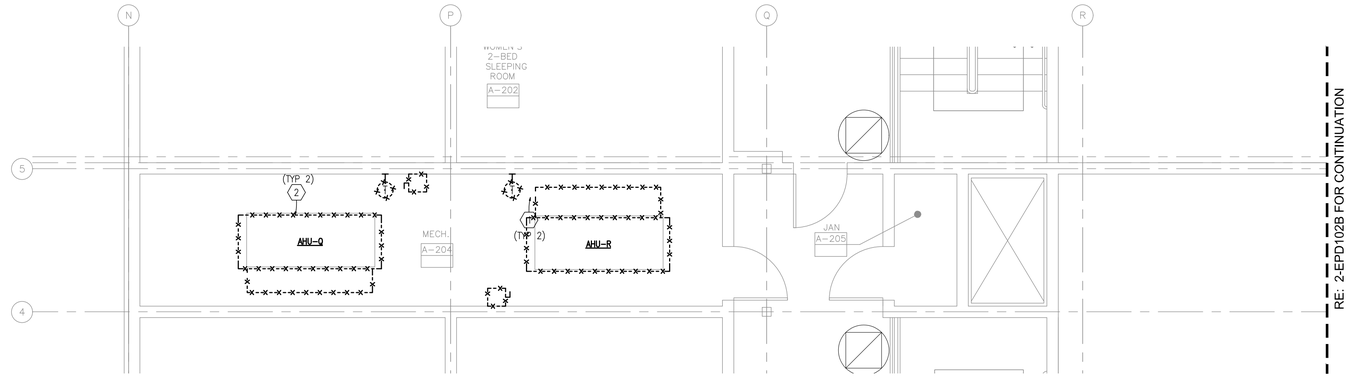
SHEET TITLE:

LEVEL 2
ELEC POWER
DEMO PLAN

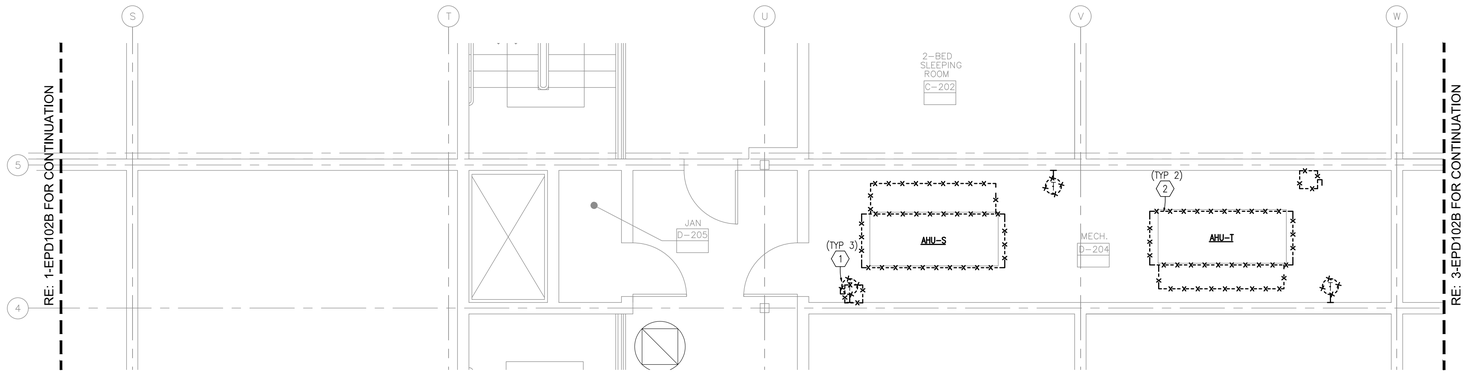
SHEET NUMBER:

EPD102A

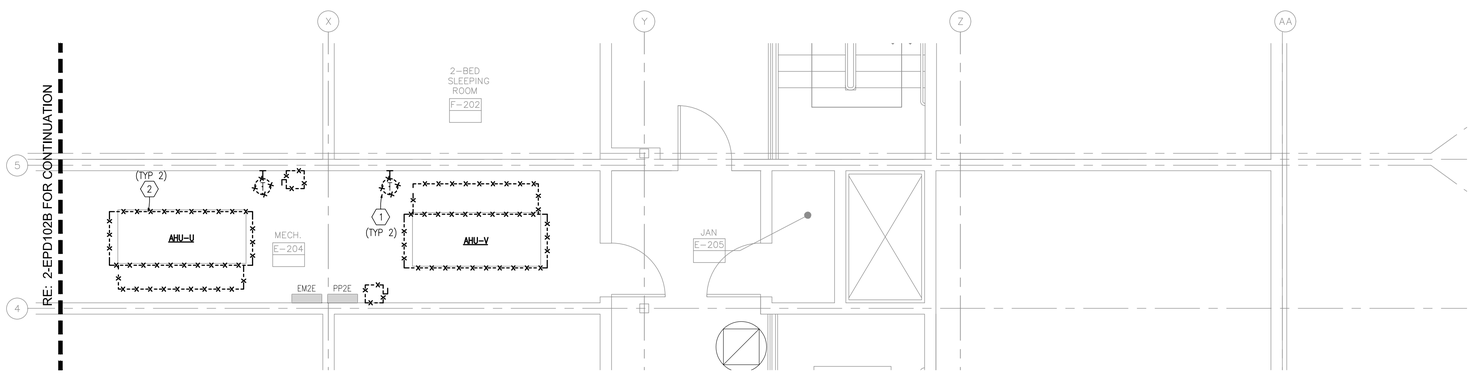
89 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 2 ELECTRICAL POWER DEMO PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 2 ELECTRICAL POWER DEMO PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 2 ELECTRICAL POWER DEMO PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. EXISTING THERMOSTAT TO BE REMOVED. REMOVE EXISTING CONDUIT AND WIRING BACK TO SOURCE OR NEAREST UNIT TO REMAIN. CONTRACTOR TO UTILIZE EXISTING CONDUIT FOR NEW UNIT INSTALLATION WHERE APPLICABLE.
2. UNIT SCHEDULED TO BE REMOVED. REMOVE EXISTING DISCONNECT AND ALL ASSOCIATED WIRING BACK TO SOURCE. EXISTING CONDUIT TO REMAIN FOR WIRING TO NEW UNITS. RE:EP101 FOR NEW UNITS. CONTRACTOR TO UTILIZE EXISTING CONDUIT FOR NEW UNIT INSTALLATION WHERE APPLICABLE.

GENERAL NOTES:
1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS EPD600 SERIES FOR PANEL SCHEDULES.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
PROFESSIONAL ENGINEER

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DESIGNED BY: MRB

SHEET TITLE:

LEVEL 2
ELEC POWER
DEMO PLAN

SHEET NUMBER:

EPD102B

90 OF 111 SHEETS
MARCH 21, 2023

PANELBOARD SCHEDULE: DPW SEC 2 - EXISTING PANEL (DEMOLITION)

	PANELBOARD TYPE		MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
277/480	VOLTAGE	3 PHASE 4 WIRE	MAIN BREAKER	X TOP	SEE PLANS
800	AMP MAIN BUS		X MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE	200% RATED NEUTRAL	FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000	RMS SYM AMPS @	480 VOLTS	SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE	X COPPER BUSSING	SOLID NEUTRAL	FLUSH	MDO

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1											EXIST						2
3	**UNIT K**						**30**	**3**	50	3	EXIST					ELEVATOR SHUNT	4
5											EXIST						6
7											EXIST						8
9	**UNIT L**						40	3	15	3	EXIST					GARAGE HEATER	10
11											EXIST						12
13																	14
15	**UNIT M**						30	3								SPACE	16
17																	18
19																	20
21	**UNIT N**						35	3	60	3						SPARE	22
23																	24
25																	26
27	**UNIT O**						30	3	60	3						SPARE	28
29																	30
31																	32
33	**UNIT P**						40	3								SPACE	34
35																	36
37																	38
39	SPACE															SPACE	40
41																	42

PANELBOARD SCHEDULE: DPW SEC1 - EXISTING PANEL (DEMOLITION)

	PANELBOARD TYPE		MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
277/480	VOLTAGE	3 PHASE 4 WIRE	MAIN BREAKER	X TOP	SEE PLANS
800	AMP MAIN BUS		X MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE	200% RATED NEUTRAL	FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000	RMS SYM AMPS @	480 VOLTS	SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE	X COPPER BUSSING	SOLID NEUTRAL	FLUSH	MDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
43																	44
45	**UNIT A**						60	3	50	3						**UNIT H**	46
47																	48
49																	50
51	**UNIT B**						100	3	40	3						**UNIT I**	52
53																	54
55																	56
57	**UNIT C**						30	3	50	3						**UNIT J**	58
59																	60
61																	62
63	**UNIT D**						30	3	60	3						SPARE	64
65																	66
67																	68
69	**UNIT E**						35	3	60	3						SPARE	70
71																	72
73																	74
75	**UNIT F**						35	3	100	3						SPARE	76
77																	78
79																	80
81	**UNIT G**						50	3								SPACE	82
83																	84
85											EXIST	P					86
87	SPACE								175	3	EXIST	P				PANEL PP1W	88
89											EXIST	P				(VIA TRANSFORMER)	90

PANELBOARD SCHEDULE: DPE SEC2 - EXISTING PANEL (DEMOLITION)

	PANELBOARD TYPE		MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
277/480	VOLTAGE	3 PHASE 4 WIRE	MAIN BREAKER	X TOP	SEE PLANS
800	AMP MAIN BUS		X MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE	200% RATED NEUTRAL	FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000	RMS SYM AMPS @	480 VOLTS	SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE	X COPPER BUSSING	SOLID NEUTRAL	FLUSH	MDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
43																	44
45	SPARE						60	3	100	3						**UNIT Q**	46
47																	48
49																	50
51	SPARE						60	3	100	3						**UNIT R**	52
53																	54
55																	56
57	SPARE						60	3	100	3						**UNIT S**	58
59																	60
61																	62
63	SPARE						60	3	100	3						**UNIT T**	64
65																	66
67																	68
69	SPARE						60	3	100	3						**UNIT U**	70
71																	72
73																	74
75	SPARE						60	3	100	3						**UNIT V**	76
77																	78
79																	80
81	SPARE						60	3								SPACE	82
83																	84
85											EXIST	P					86
87	SPACE								175	3	EXIST	P				PANEL PP1E	88
89											EXIST	P				(VIA TRANSFORMER)	90

PANELBOARD SCHEDULE: HVE - EXISTING PANEL (DEMOLITION)

	PANELBOARD TYPE		MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
277/480	VOLTAGE	3 PHASE 4 WIRE	X 225A MAIN BREAKER	X TOP	SEE PLANS
225	AMP MAIN BUS		X MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE	200% RATED NEUTRAL	FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000	RMS SYM AMPS @	480 VOLTS	SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE	X COPPER BUSSING	SOLID NEUTRAL	FLUSH	EMDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1																	2
3	CUH-1 HEATER						15	3	60	3						HOT WATER HEATER 1	4
5																	6
7																	8
9	**AHU-15**						15	3	15	3						EF-1	10
11																	12
13																	14
15	**AHU-15 REHEAT COIL**						60	3	35	3						**ACCU-15**	16
17																	18
19																	20
21	**AHU-16**						15	3	20	3						**ACCU-16**	22
23																	24
25																	26
27	**AHU-16 REHEAT COIL**						35	3	15	3						**ACCU-17**	28
29																	30
31																	32
33	TVSS						60	3	30	3						**AHU-17 REHEAT COIL**	34
35																	36
37	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	38
39	SPACE								20	1						UNKNOWN LOAD	40
41	SPACE															SPACE	42
	SPACE								125	3						PANEL PP3E	
																(VIA XFMR-TE2)	

PANELBOARD SCHEDULE: HV1 SEC 1 - EXISTING PANEL (DEMOLITION)

	PANELBOARD TYPE		MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
277/480	VOLTAGE	3 PHASE 4 WIRE	MAIN BREAKER	X TOP	SEE PLANS
800	AMP MAIN BUS		X MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE	200% RATED NEUTRAL	FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000	RMS SYM AMPS @	480 VOLTS	SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE	X COPPER BUSSING	SOLID NEUTRAL	FLUSH	MDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1																	2
3	**CONDENSER UNIT A**						35	3	15	3						**CONDENSER UNIT D**	4
5																	6
7																	8
9	**CONDENSER UNIT B**						35	3	15	3						**CONDENSER UNIT E**	10
11																	12
13																	14
15	**CONDENSER UNIT C**						**20**	**3**	15	3						**CONDENSER UNIT F**	16
17																	18
19																	20
21	**CONDENSER UNIT J**						**30**	**3**	20	3						**CONDENSER UNIT G**	22
23																	24
25																	26
27	**CONDENSER UNIT K**						**15**	**3**	20	3						**CONDENSER UNIT H**	28
29																	30
31																	32
33	**CONDENSER UNIT L**						15	3	20	3						**CONDENSER UNIT I**	34
35																	36
37																	38
39	**CONDENSER UNIT M**						15	3	15	3						**CONDENSER UNIT N**	40
41																	42
	SPACE								175	3						PANEL KP	
																(VIA 112.5 KVA XFMR)	

PANELBOARD SCHEDULE: HV1 SEC 2 - EXISTING PANEL (DEMOLITION)

	PANELBOARD TYPE		MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
277/480	VOLTAGE	3 PHASE 4 WIRE	MAIN BREAKER	X TOP	SEE PLANS
800	AMP MAIN BUS		X MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE	200% RATED NEUTRAL	FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000	RMS SYM AMPS @	480 VOLTS	SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE	X COPPER BUSSING	SOLID NEUTRAL	FLUSH	MDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
43																	44
45	**CONDENSER UNIT Q**						35	3	35	3						**CONDENSER UNIT T**	46
47																	48
49																	50
51	**CONDENSER UNIT R**						35	3	35	3						**CONDENSER UNIT U**	52
53																	54
55																	56
57	**CONDENSER UNIT S**						35	3	35	3						**CONDENSER UNIT V**	58
59																	60
61					EXIST						EXIST						62
63	DISHWASHER				EXIST		30	3	60	3	EXIST					HVI 3	64
65					EXIST						EXIST						66
67					EXIST												68
69	BOOSTER HEATER				EXIST		90	3	20	3						**CONDENSER UNIT P**	70
71					EXIST												72
73																	74
75	**CONDENSER UNIT L**						15	3	15	3						**CONDENSER UNIT O**	76
77																	78
79																	80
81	SPACE															SPACE	82
83																	84

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
PROFESSIONAL ENGINEER

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DEPARTMENT OF
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CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

ELECTRICAL
SCHEDULES
DEMO WORK

SHEET NUMBER:

ED601

91 OF 111 SHEETS
MARCH 21, 2023

PANELBOARD SCHEDULE: EM3E - EXISTING PANEL (DEMOLITION)

	PANELBOARD TYPE				MAIN FUSE
277/480	VOLTAGE	3 PHASE	4 WIRE	X 200A	MAIN BREAKER
225	AMP MAIN BUS			X	MAIN LUGS
1	NEMA ENCLOSURE		200% RATED NEUTRAL		FEED THRU LUGS
VERIFY	RMS SYM AMPS @	480	VOLTS		SUB-FEED BREAKER
1/16/23	DATE	X	COPPER BUSSING		SOLID NEUTRAL

FEEDER ENTRANCE: X TOP; BOTTOM
MOUNT: X SURFACE; FLUSH
PANEL LOCATION: SEE PLANS
FEEDER CABLE: SEE ONE-LINE DIAGRAM
SOURCE: PANEL EMDP

	SERVICE	VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1																	2
3	**AHU-18**						15	3	50	3						**ACCU-18**	4
5																	6
7									20	1						LTS GEN STORAGE 114	8
9	**AHU-18 REHEAT COIL**						80	3	20	1						LTS DORMITORY 117	10
11									20	1						LTS OFFICE AREA	12
13									20	1						LTS RESTROOMS	14
15	PANEL EML3E						50	3	20	1						LTS OUTSIDE	16
17	(VIA XFMR-EMTE2)								20	1						LTS OUTSIDE	18
19									20	1						LTS FLOODS OUTSIDE	20
21	UNKNOWN LOAD						50	3	20	1						SPARE	22
23									20	1						SPARE	24
25									20	1						SPARE	26
27	UNKNOWN LOAD						80	3	20	1						SPARE	28
29									20	1						SPARE	30
31	SPARE						20	1	20	1						SPARE	32
33	SPARE						20	1	20	1						SPARE	34
35	SPARE						20	1	20	1						SPARE	36
37																	38
39	TVSS UNIT						60	3	15	3						UNKNOWN LOAD	40
41																	42

PANELBOARD SCHEDULE: PP3E SEC 2 - EXISTING PANEL (DEMOLITION)

	PANELBOARD TYPE				MAIN FUSE
120/208	VOLTAGE	3 PHASE	4 WIRE		MAIN BREAKER
200	AMP MAIN BUS			X	MAIN LUGS
1	NEMA ENCLOSURE		200% RATED NEUTRAL		FEED THRU LUGS
10,000	RMS SYM AMPS @	480	VOLTS		SUB-FEED BREAKER
1/16/23	DATE	X	COPPER BUSSING		SOLID NEUTRAL

FEEDER ENTRANCE: X TOP; BOTTOM
MOUNT: X SURFACE; FLUSH
PANEL LOCATION: SEE PLANS
FEEDER CABLE: SEE ONE-LINE DIAGRAM
SOURCE: PANEL HVE

	SERVICE	VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
43	BACK DOOR MOTOR						20	1	25	2						CUH-2	44
45	EXT REAR REC						20	1									46
47	FLOOR JACK 117						20	2	**15**	**2**						**AHU-17**	48
49																	50
51	JAN 115						20	1	**20**	**1**						**MEZZANINE REC**	52
53	WATER SOFTENER						20	1	20	1						**MEZZANINE TCP**	54
55	RCP-1						20	1	20	1						HK DORMITORY 112	56
57	SPARE						20	1	20	1						UNKNOWN LOAD	58
59	SPARE						20	1	20	1						UNKNOWN LOAD	60
61	SPARE						20	1	20	1						UNKNOWN LOAD	62
63	SPARE						20	1	20	1						UNKNOWN LOAD	64
65	SPARE						20	1	20	1						UNKNOWN LOAD	66
67	SPARE						20	1	20	1						UNKNOWN LOAD	68
69									20	1						UNKNOWN LOAD	70
71	TVSS UNIT						60	3	20	1						UNKNOWN LOAD	72
73									20	2						UNKNOWN LOAD	74
75	SPARE						20	1									76
77	SPARE						15	2	25	2						UNKNOWN LOAD	78
79																	80
81	SPARE						20	2	30	2						UNKNOWN LOAD	82
83																	84

PANELBOARD SCHEDULE: EX-MUA - EXISTING PANEL (DEMOLITION)

	PANELBOARD TYPE				MAIN FUSE
277/480	VOLTAGE	3 PHASE	4 WIRE		MAIN BREAKER
100	AMP MAIN BUS			X	MAIN LUGS
1	NEMA ENCLOSURE		200% RATED NEUTRAL		FEED THRU LUGS
14,000	RMS SYM AMPS @	480	VOLTS		SUB-FEED BREAKER
1/16/23	DATE	X	COPPER BUSSING		SOLID NEUTRAL

FEEDER ENTRANCE: X TOP; BOTTOM
MOUNT: X SURFACE; FLUSH
PANEL LOCATION: SEE PLANS
FEEDER CABLE: SEE ONE-LINE DIAGRAM
SOURCE: FIELD VERIFY

	SERVICE	VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1																	2
3	EX-1						15	3	15	3						**MUA-1**	4
5																	6
7																	8
9	EX-2						15	3	15	3						**MUA-2**	10
11																	12
13									20	1						UNKNOWN LOAD	14
15	UNKNOWN LOAD						15	3								SPACE	16
17																SPACE	18
19	SPACE															SPACE	20
21	SPACE															SPACE	22
23	SPACE															SPACE	24
25	SPACE															SPACE	26
27	SPACE															SPACE	28
29	SPACE															SPACE	30

PANELBOARD SCHEDULE: PP1E SEC 3 - EXISTING PANEL (DEMOLITION)

	PANELBOARD TYPE				MAIN FUSE
120/208	VOLTAGE	3 PHASE	4 WIRE		MAIN BREAKER
250	AMP MAIN BUS			X	MAIN LUGS
1	NEMA ENCLOSURE		200% RATED NEUTRAL		FEED THRU LUGS
10,000	RMS SYM AMPS @	480	VOLTS		SUB-FEED BREAKER
1/16/23	DATE	X	COPPER BUSSING		SOLID NEUTRAL

FEEDER ENTRANCE: X TOP; BOTTOM
MOUNT: X SURFACE; FLUSH
PANEL LOCATION: SEE PLANS
FEEDER CABLE: SEE ONE-LINE DIAGRAM
SOURCE: PANEL PP1E

	SERVICE	VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1	RECPT-SLEEP NE						20	1	20	1						RECPT-BATHROOM	2
3	RECPT-SLEEP NE						20	1	20	1						RECEPT-BATHROOM	4
5	RECPT-SLEEP NE						20	1	20	1						CASE WORKER RM	6
7	DRYER						30	2	30	2						DRYER	8
9																	10
11	EX-FAN BATHROOM						20	1	20	1						WASHER RECPT	12
13	FIRE DAMPERS						20	1	20	1						WASHER RECPT	14
15	FIRE ALARM PANEL						20	1	20	1						IRON BOARD ROOF	16
17	**UNKNOWN LOAD**						**20**	**1**	20	1						UNKNOWN LOAD	18
19	**UNKNOWN LOAD**						**20**	**1**	20	2						ICE MACHINE	20
21	ICE MACHINE						30	2									22
23									20	2						ICE MACHINE	24
25	J PAY						20	2									26
27									100	2						TEMP POWER	28
29	SPACE																30

PANELBOARD SCHEDULE: KP SEC2 - EXISTING PANEL (DEMOLITION)

	PANELBOARD TYPE				MAIN FUSE
120/208	VOLTAGE	3 PHASE	4 WIRE		MAIN BREAKER
400	AMP MAIN BUS			X	MAIN LUGS
1	NEMA ENCLOSURE		200% RATED NEUTRAL		FEED THRU LUGS
10,000	RMS SYM AMPS @	240	VOLTS		SUB-FEED BREAKER
1/16/23	DATE	X	COPPER BUSSING		SOLID NEUTRAL

FEEDER ENTRANCE: X TOP; BOTTOM
MOUNT: X SURFACE; FLUSH
PANEL LOCATION: SEE PLANS
FEEDER CABLE: SEE ONE-LINE DIAGRAM
SOURCE: PANEL HV1

	SERVICE	VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
43	MICROWAVE 51A						20	1	30	2						TOASTER 45A	44
45	MICROWAVE 51A						20	1									46
47	MIXER						30	2	20	1						PEELER 42A	48
49									20	1						UNKNOWN LOAD	50
51	UNKNOWN LOAD						20	1	20	1						PEELER 42A	52
53	FREEZE 7A						20	1	20	1						UNKNOWN LOAD	54
55	DUPLEX 12A,13A						20	1	20	1						OVERHEAD	56
57	CONTROL CIRCUIT						20	1	20	1						UNKNOWN LOAD	58
59	JACKET HEATER GEN						30	1									60
61	RECP - DOCK						20	1	20	3						FORKLIFT CHARGER	62
63	RECP - DOCK						20	1									64
65	DOCK HEATER						20	1									66
67									35	3						**WAREHOUSE A/C**	68
69	TRASH COMP						40	3									70
71									30	1						UNKNOWN LOAD	72
73	GARAGE DOOR						20	1	20	1						UNKNOWN LOAD	74
75	LIGHTS						20	1	20	2						UNKNOWN LOAD	76
77	LIGHTS						30	1									78
79	GFI IN COOLER						20	1									80
81	SPACE								25	3						UNIT D A/C	82
83	SPACE																84

STATE OF MISSOURI
MICHAEL L. PARSON,
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STATE OF MISSOURI
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3-21-2023
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CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER
OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
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DATE:
ISSUE DATE: 03/21/2023

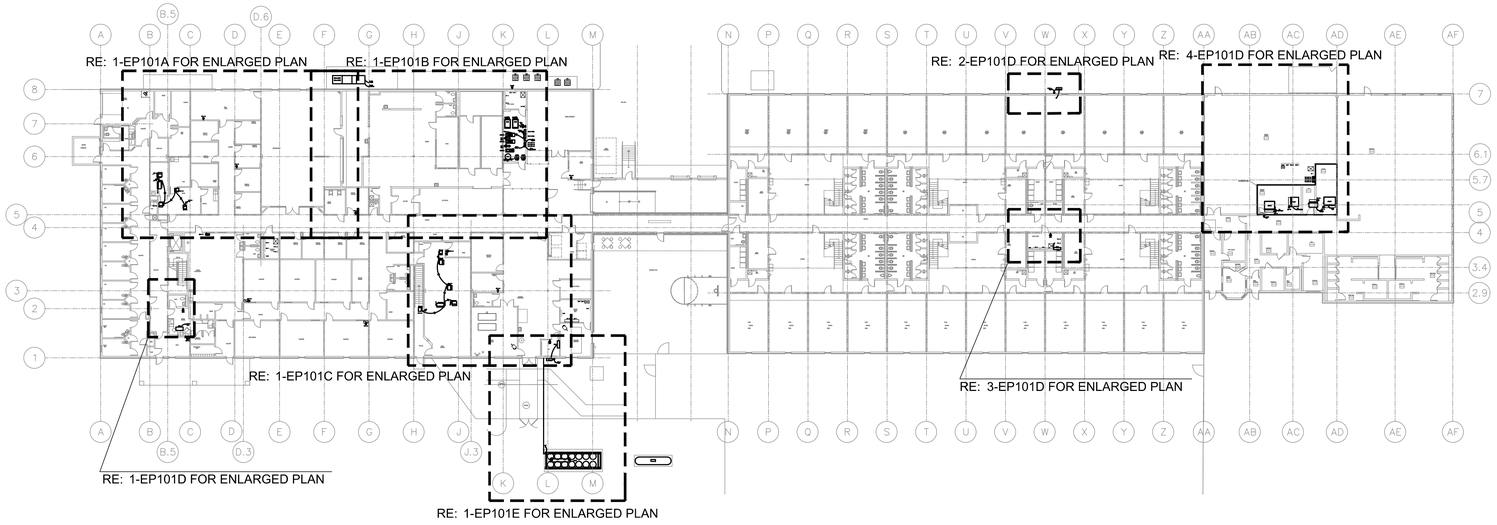
CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

ELECTRICAL
SCHEDULES
DEMO WORK

SHEET NUMBER:

ED602



1 LEVEL 1 OVERALL ELECTRICAL POWER NEW WORK PLAN

SCALE: 1/32" = 1'-0"

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
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ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

LEVEL 1 OVERALL ELEC POWER NEW WORK PLAN

SHEET NUMBER:

EP101

93 OF 111 SHEETS
MARCH 21, 2023

1 ELEC POWER NEW WORK PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE 3/4" CONDUIT DAISY CHAIN WITH PULL STRINGS AND J-BOXES ADJACENT TO ALL VAV BOXES. COLOR J-BOXES PER SPECIFICATIONS.
2. PROVIDE J-BOX AND 1/2" CONDUIT WITH PULL STRING ROUTED TO CONTROLLER. THERMOSTAT/SENSOR AND CONTROL WIRING BY CONTROLS CONTRACTOR. COORDINATE WORK WITH CONTROLS CONTRACTOR.
3. CONNECT CIRCUITRY TO DISCONNECT PROVIDED WITH EQUIPMENT.
4. REINSTALL ALL EXISTING ELECTRICAL DEVICES RETAINED DURING DEMOLITION IN THE NEW CEILING. REFERENCE SHEET EPD101A FOR ADDITIONAL INFORMATION.

GENERAL NOTES:
1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS E600 SERIES FOR PANEL SCHEDULES AND MISC. SCHEDULE.

STATE OF MISSOURI
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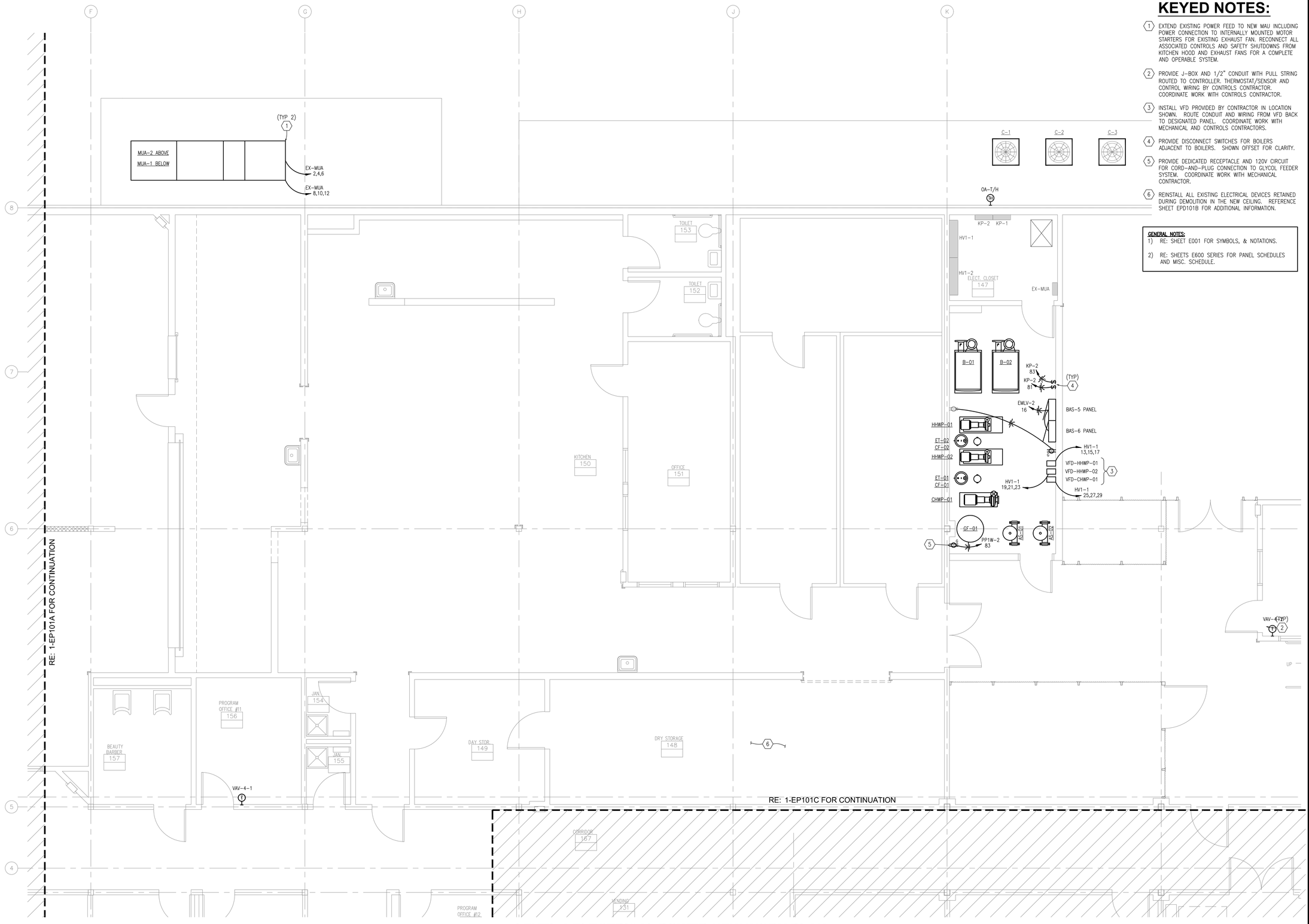
SHEET TITLE:

LEVEL 1
ELEC POWER
NEW WORK PLAN

SHEET NUMBER:

EP101A

94 OF 111 SHEETS
MARCH 21, 2023



KEYED NOTES:

1. EXTEND EXISTING POWER FEED TO NEW MAU INCLUDING POWER CONNECTION TO INTERNALLY MOUNTED MOTOR STARTERS FOR EXISTING EXHAUST FAN. RECONNECT ALL ASSOCIATED CONTROLS AND SAFETY SHUTDOWNS FROM KITCHEN HOOD AND EXHAUST FANS FOR A COMPLETE AND OPERABLE SYSTEM.
2. PROVIDE J-BOX AND 1/2" CONDUIT WITH PULL STRING ROUTED TO CONTROLLER. THERMOSTAT/SENSOR AND CONTROL WIRING BY CONTROLS CONTRACTOR. COORDINATE WORK WITH CONTROLS CONTRACTOR.
3. INSTALL VFD PROVIDED BY CONTRACTOR IN LOCATION SHOWN. ROUTE CONDUIT AND WIRING FROM VFD BACK TO DESIGNATED PANEL. COORDINATE WORK WITH MECHANICAL AND CONTROLS CONTRACTORS.
4. PROVIDE DISCONNECT SWITCHES FOR BOILERS ADJACENT TO BOILERS. SHOWN OFFSET FOR CLARITY.
5. PROVIDE DEDICATED RECEPTACLE AND 120V CIRCUIT FOR CORD-AND-PLUG CONNECTION TO GLYCOL FEEDER SYSTEM. COORDINATE WORK WITH MECHANICAL CONTRACTOR.
6. REINSTALL ALL EXISTING ELECTRICAL DEVICES RETAINED DURING DEMOLITION IN THE NEW CEILING. REFERENCE SHEET EPD101B FOR ADDITIONAL INFORMATION.

GENERAL NOTES:

1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS E600 SERIES FOR PANEL SCHEDULES AND MISC. SCHEDULE.

1 LEVEL 1 ELECTRICAL POWER NEW WORK PLAN

SCALE: 1/4" = 1'-0"

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DESIGNED BY: MRB

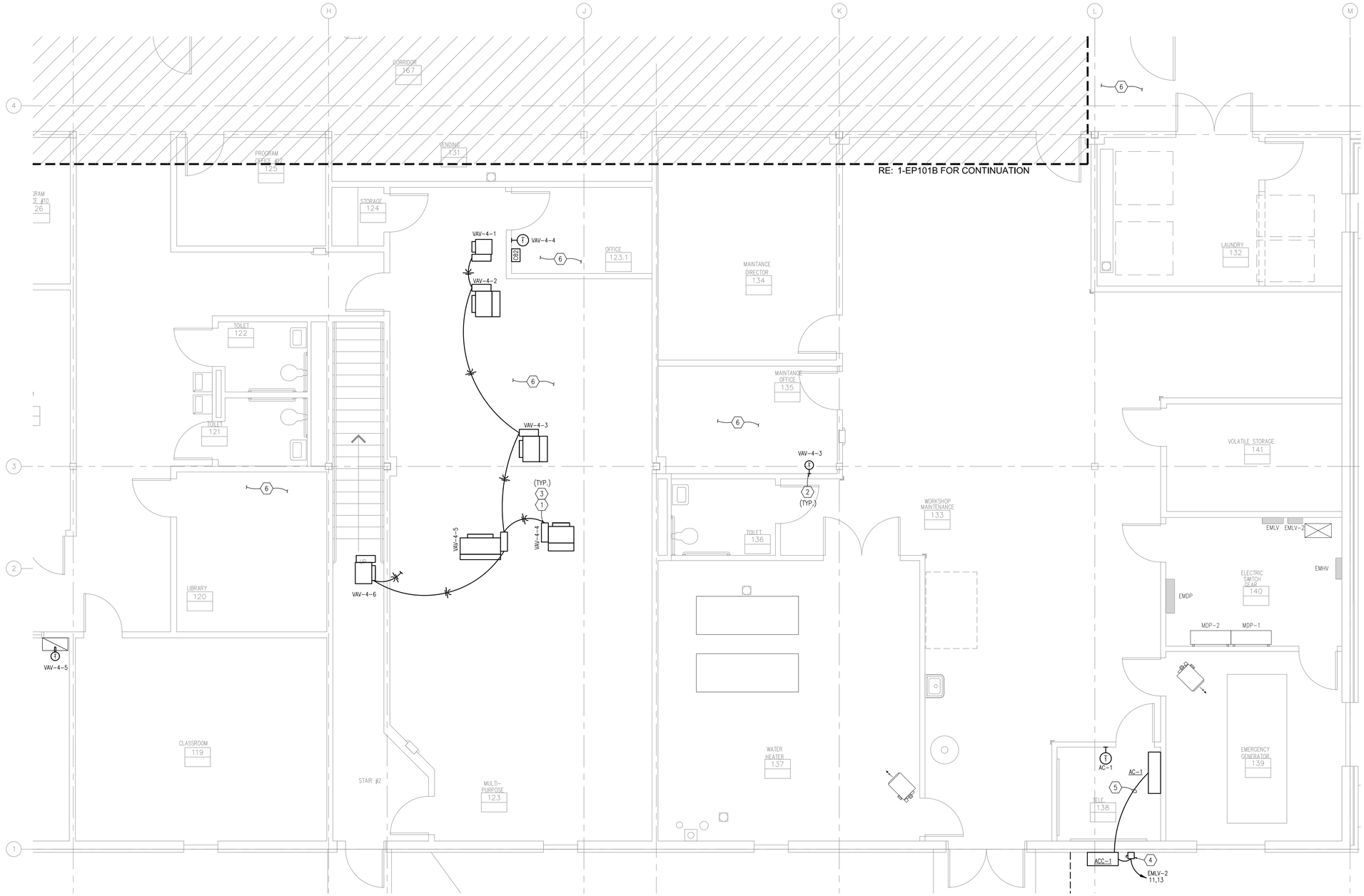
SHEET TITLE:

LEVEL 1
ELEC POWER
NEW WORK PLAN

SHEET NUMBER:

EP101B

95 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 1 ELECTRICAL POWER NEW WORK PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE 3/4" CONDUIT DAISY CHAIN WITH PULL STRINGS AND J-BOXES ADJACENT TO ALL VAV BOXES. COLOR J-BOXES PER SPECIFICATIONS.
2. PROVIDE J-BOX AND 1/2" CONDUIT WITH PULL STRING ROUTED TO CONTROLLER. THERMOSTAT/SENSOR AND CONTROL WIRING BY CONTROLS CONTRACTOR. COORDINATE WORK WITH CONTROLS CONTRACTOR.
3. CONNECT CIRCUITRY TO DISCONNECT SWITCH PROVIDED WITH EQUIPMENT.
4. PROVIDE DISCONNECT SWITCH FOR CONDENSING UNIT. PROVIDE 30A, 3P, 240V, NEMA 3R, HD, FUSED DISCONNECT WITH 20A FUSES. MOUNT ON EXTERIOR WALL ADJACENT TO UNIT WHILE MAINTAINING ALL REQUIRED CLEARANCES.
5. EXTEND CONDUIT AND WIRING FROM CONDENSING UNIT TO INDOOR UNIT. INDOOR UNIT TO BE POWERED FROM ASSOCIATED CONDENSING UNIT. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
6. REINSTALL ALL EXISTING ELECTRICAL DEVICES RETAINED DURING DEMOLITION IN THE NEW CEILING. REFERENCE SHEET EPD101C FOR ADDITIONAL INFORMATION.

GENERAL NOTES:

1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS E600 SERIES FOR PANEL SCHEDULES AND MISC. SCHEDULE.

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KANSAS CITY, MISSOURI

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ISSUE DATE: 03/21/2023

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DESIGNED BY: MRB

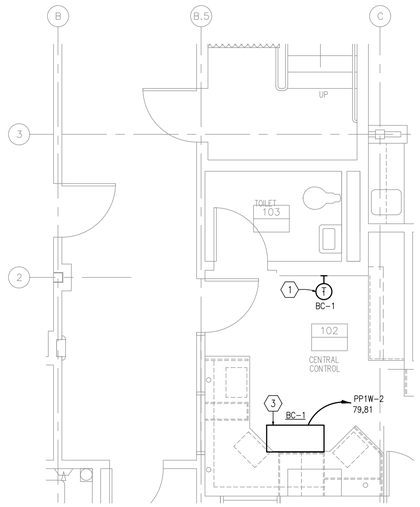
SHEET TITLE:

LEVEL 1
ELEC POWER
NEW WORK PLAN

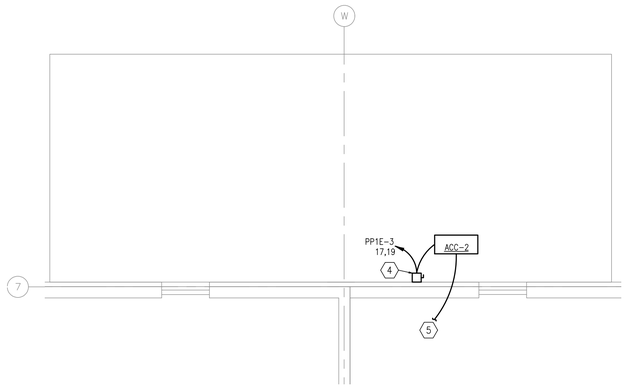
SHEET NUMBER:

EP101C

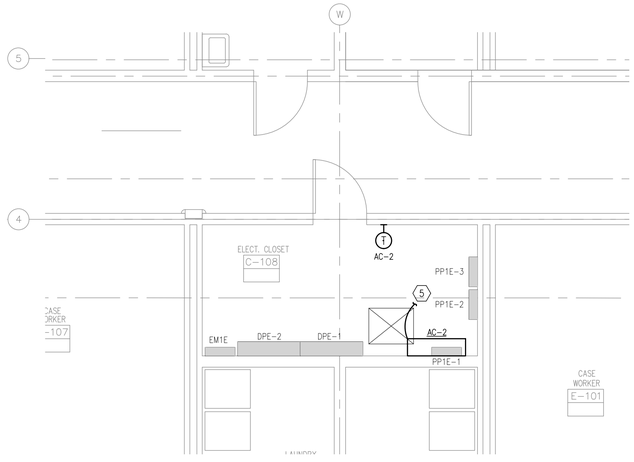
96 OF 111 SHEETS
MARCH 21, 2023



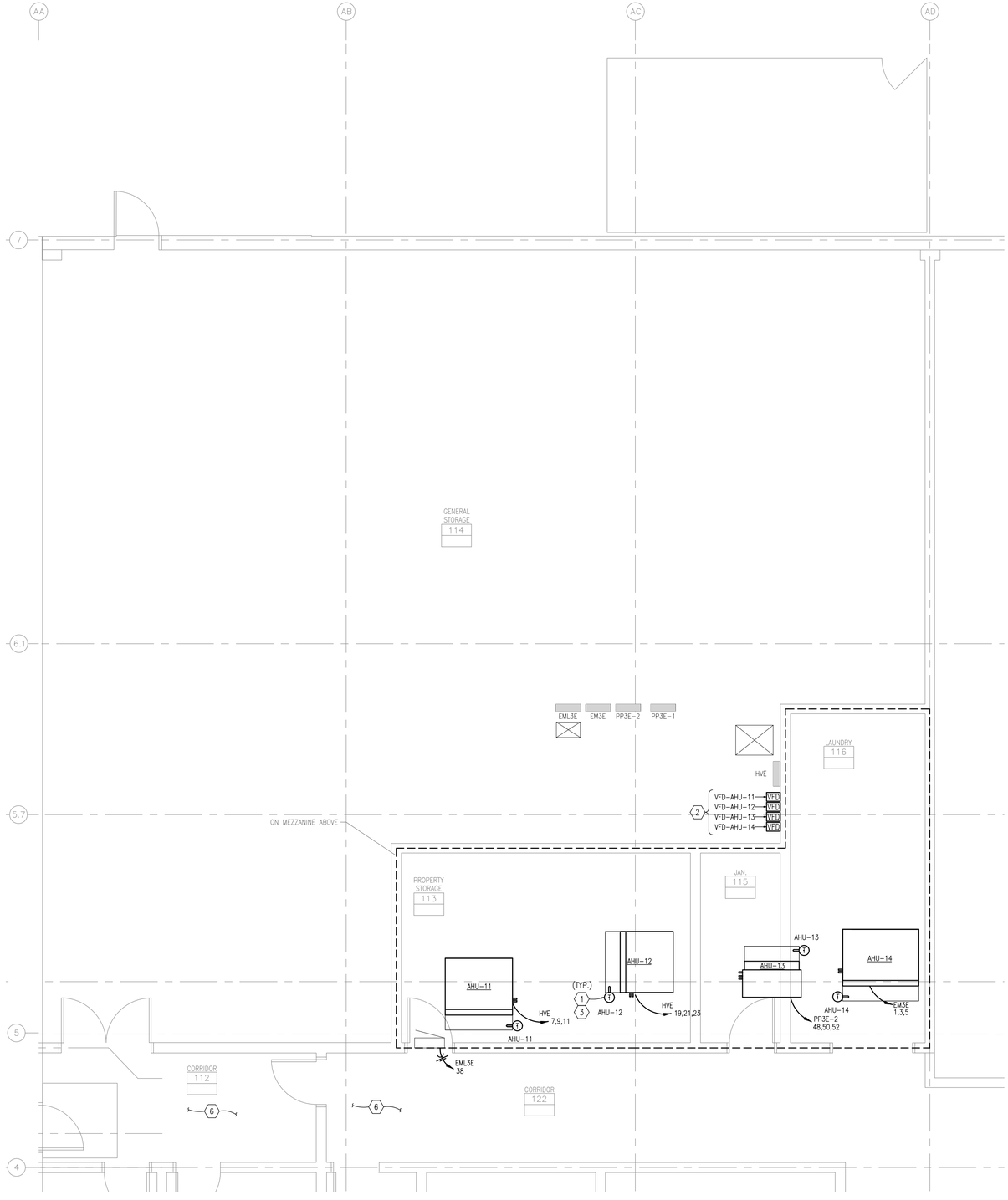
1 LEVEL 1 ELECTRICAL POWER NEW WORK PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 1 ELECTRICAL POWER NEW WORK PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 1 ELECTRICAL POWER NEW WORK PLAN
SCALE: 1/4" = 1'-0"



4 LEVEL 1 ELECTRICAL POWER NEW WORK PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE J-BOX AND 1/2" CONDUIT WITH PULL STRING ROUTED TO CONTROLLER. THERMOSTAT/SENSOR AND CONTROL WIRING BY CONTROLS CONTRACTOR. COORDINATE WORK WITH CONTROLS CONTRACTOR.
2. INSTALL VFD PROVIDED BY CONTRACTOR IN APPROXIMATE LOCATION SHOWN. MOUNT VFD ON WALL NEAR UNIT. ROUTE CONDUIT AND WIRING FROM AIR HANDLING UNIT THROUGH VFD AND TO DESIGNATED PANEL BOARD. E604 FOR FEEDER REQUIREMENTS.
3. CONNECT CIRCUITRY TO DISCONNECT SWITCH PROVIDED WITH EQUIPMENT.
4. PROVIDE DISCONNECT SWITCH FOR CONDENSING UNIT. PROVIDE 30A, 3P, 240V, NEMA 3R, HD, FUSED DISCONNECT WITH 20A FUSES. MOUNT ON EXTERIOR WALL ADJACENT TO UNIT WHILE MAINTAINING ALL REQUIRED CLEARANCES.
5. EXTEND CONDUIT AND WIRING FROM CONDENSING UNIT TO INDOOR UNIT. INDOOR UNIT TO BE POWERED FROM ASSOCIATED CONDENSING UNIT. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
6. REINSTALL ALL EXISTING ELECTRICAL DEVICES RETAINED DURING DEMOLITION IN THE NEW CEILING. REFERENCE SHEET EPD101D FOR ADDITIONAL INFORMATION.

GENERAL NOTES:
1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS E600 SERIES FOR PANEL SCHEDULES AND MISC. SCHEDULE.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
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DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

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CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

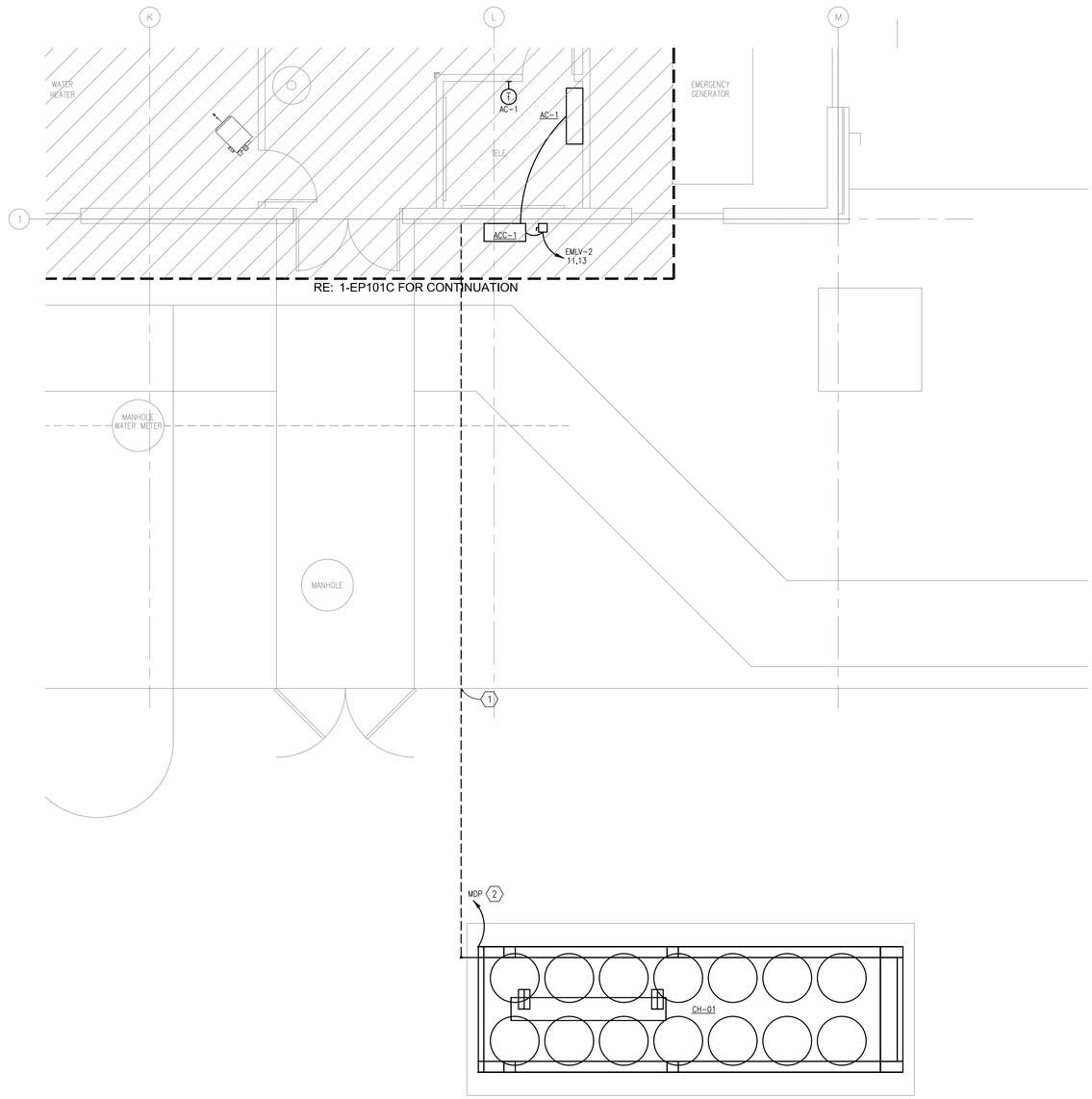
SHEET TITLE:

LEVEL 1
ELEC POWER
NEW WORK PLAN

SHEET NUMBER:

EP101D

97 OF 111 SHEETS
MARCH 21, 2023



KEYED NOTES:

1. ROUTE CONDUIT BELOW GRADE UNDER EXISTING FENCE. COORDINATE LOCATION WITH EXISTING DOMESTIC COLD WATER MAIN APPROXIMATELY 5'-0" BELOW GRADE.
2. CONNECT CIRCUITRY TO DISCONNECT SWITCH PROVIDED WITH EQUIPMENT.

GENERAL NOTES:

1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS E600 SERIES FOR PANEL SCHEDULES AND MISC. SCHEDULE.

1 LEVEL 1 ELECTRICAL POWER NEW WORK PLAN

SCALE: 1/4" = 1'-0"

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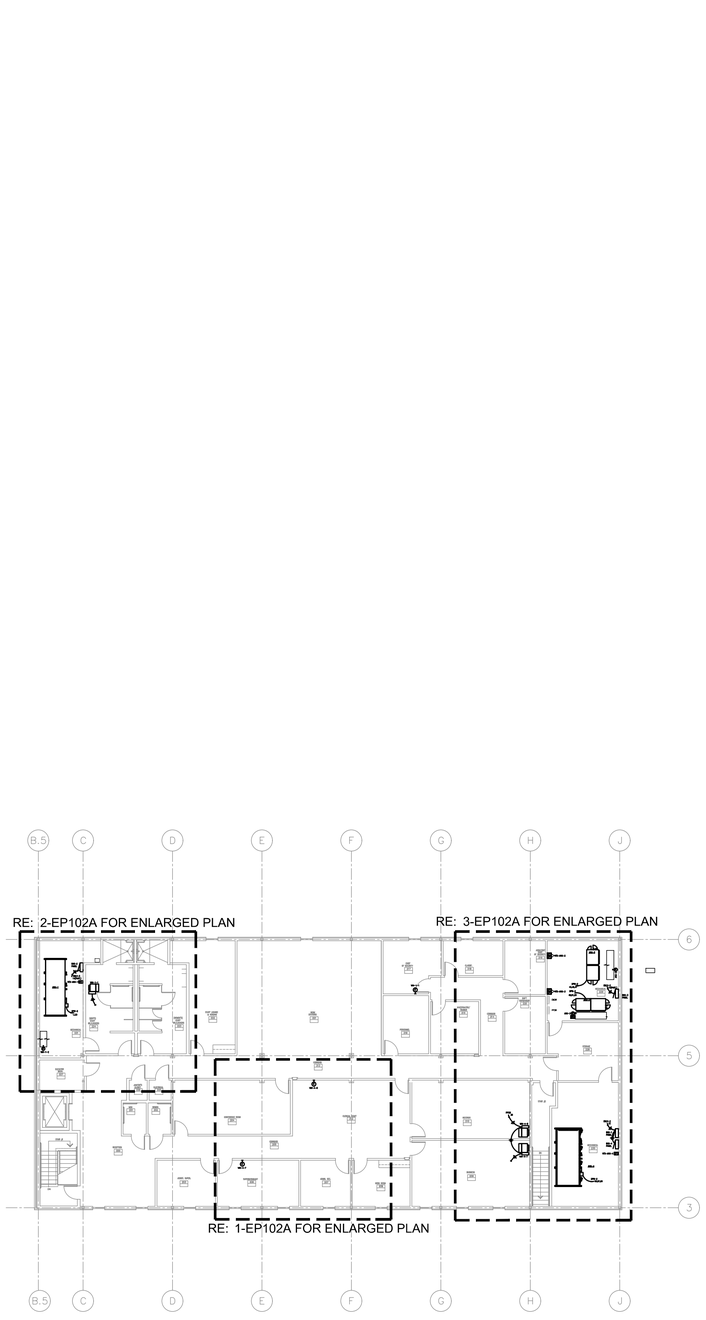
SHEET TITLE:

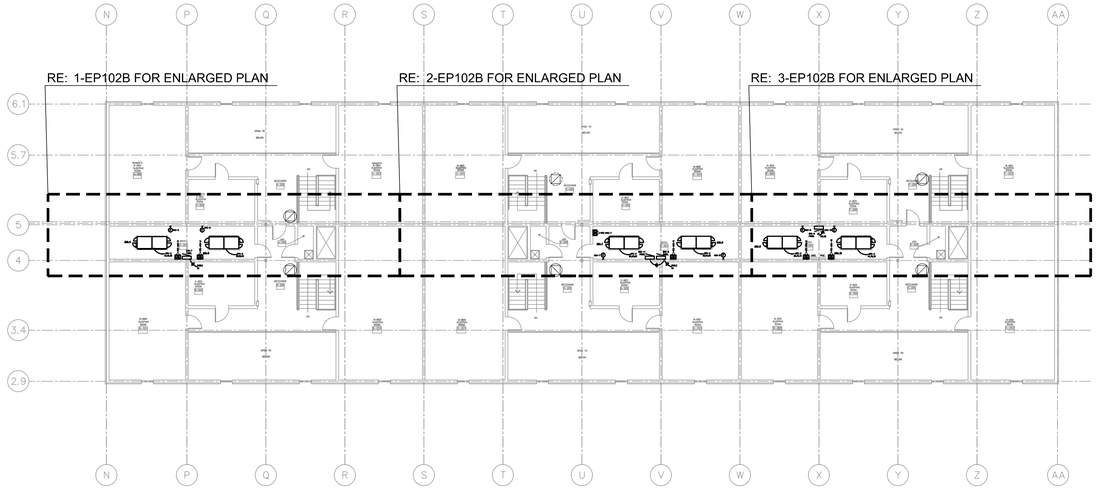
LEVEL 1
ELEC POWER
NEW WORK PLAN

SHEET NUMBER:

EP101E

98 OF 111 SHEETS
MARCH 21, 2023





1 LEVEL 2 ELECTRICAL OVERALL POWER NEW WORK PLAN
SCALE: 1/16" = 1'-0"

STATE OF MISSOURI
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DRAWN BY: RJR
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DESIGNED BY: MRB

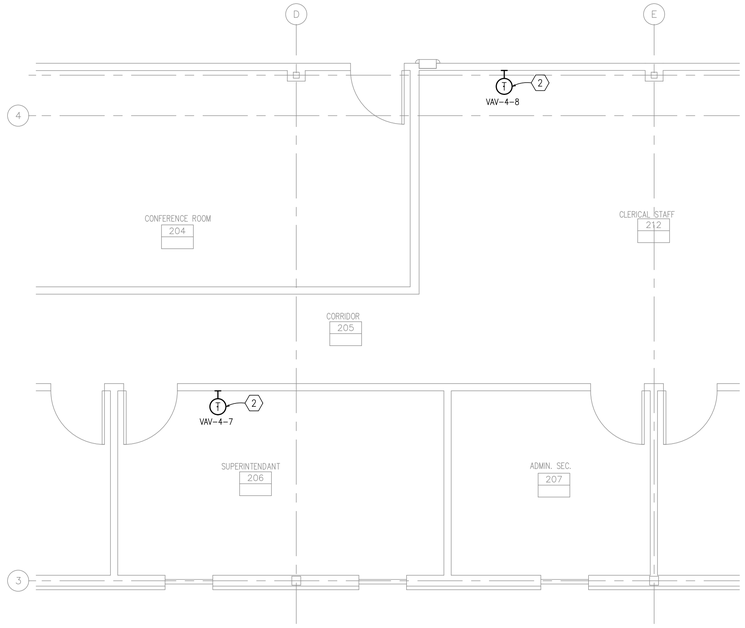
SHEET TITLE:

LEVEL 2 OVERALL ELEC POWER NEW WORK PLAN

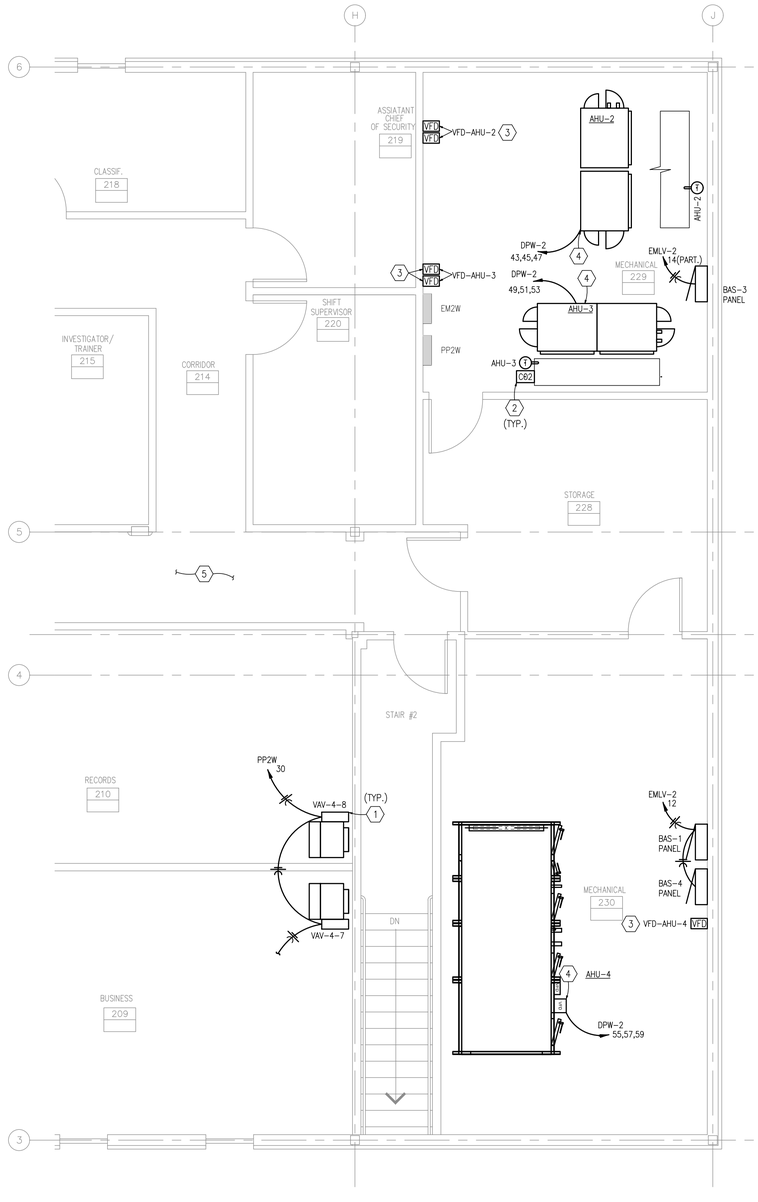
SHEET NUMBER:

EP102

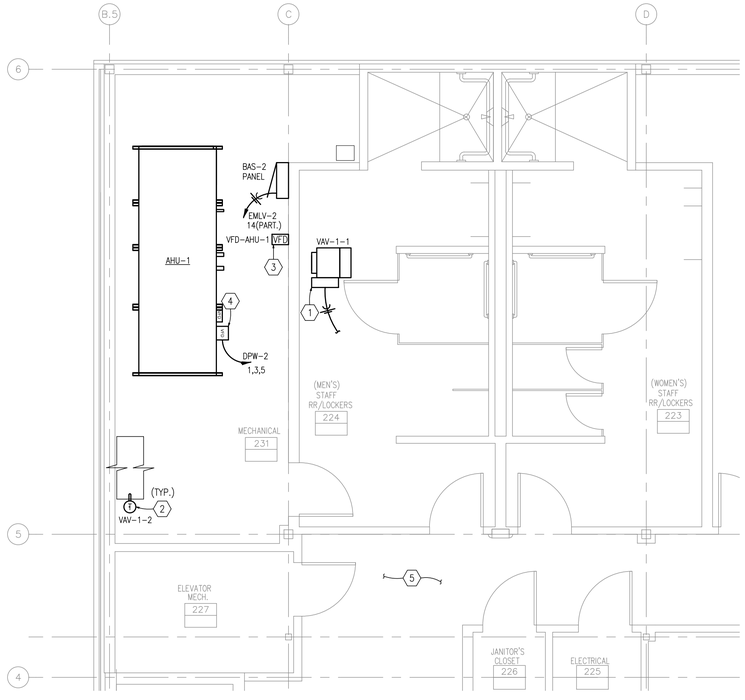
99 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 2 ELECTRICAL POWER NEW WORK PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 2 ELECTRICAL POWER NEW WORK PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 2 ELECTRICAL POWER NEW WORK PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE 3/4" CONDUIT DAISY CHAIN WITH PULL STRINGS AND J-BOXES ADJACENT TO ALL VAV BOXES. COLOR J-BOXES PER SPECIFICATIONS.
2. PROVIDE J-BOX AND 1/2" CONDUIT WITH PULL STRING ROUTED TO CONTROLLER. THERMOSTAT/SENSOR AND CONTROL WIRING BY CONTROLS CONTRACTOR. COORDINATE WORK WITH CONTROLS CONTRACTOR.
3. INSTALL VFD PROVIDED BY CONTRACTOR IN APPROXIMATE LOCATION SHOWN. MOUNT VFD ON WALL NEAR UNIT. ROUTE CONDUIT AND WIRING FROM AIR HANDLING UNIT THROUGH VFD AND TO DESIGNATED PANEL BOARD. RE: E604 FOR FEEDER REQUIREMENTS.
4. CONNECT CIRCUITRY TO DISCONNECT SWITCH PROVIDED WITH EQUIPMENT.
5. REINSTALL ALL EXISTING ELECTRICAL DEVICES RETAINED DURING DEMOLITION IN THE NEW CEILING. REFERENCE SHEET EPD102A FOR ADDITIONAL INFORMATION.

GENERAL NOTES:
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2) RE: SHEETS E600 SERIES FOR PANEL SCHEDULES AND MISC. SCHEDULE.

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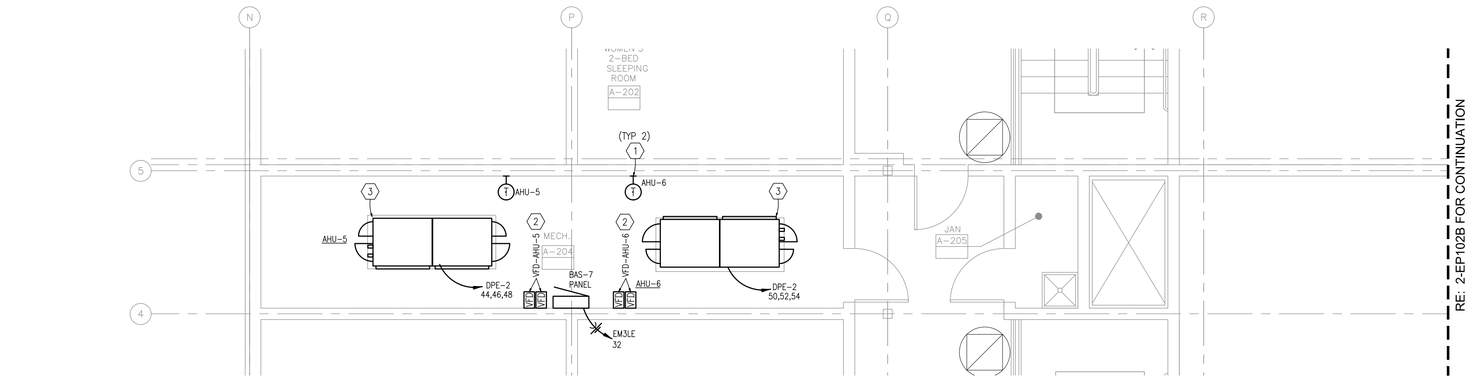
LEVEL 2
ELEC POWER
NEW WORK PLAN

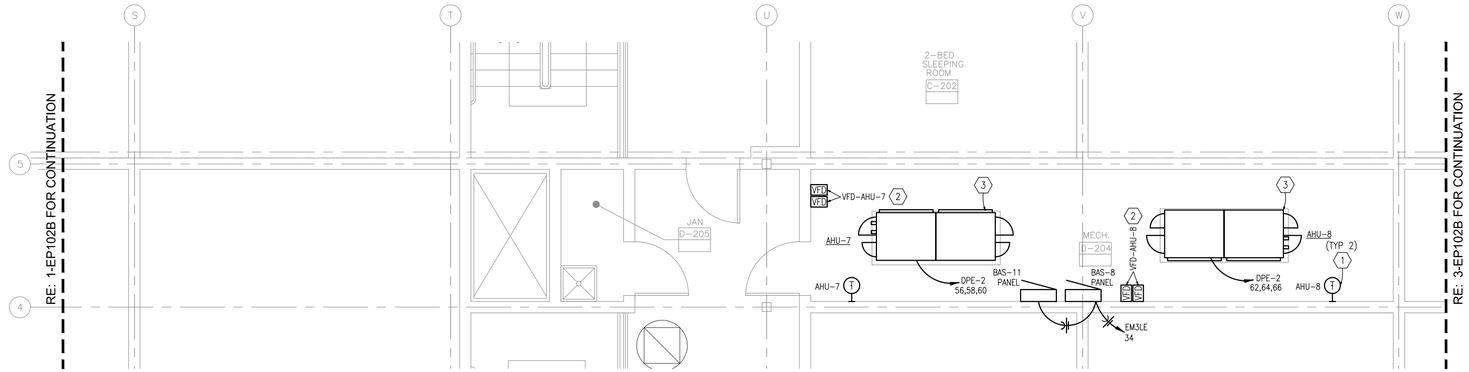
SHEET NUMBER:

EP102A

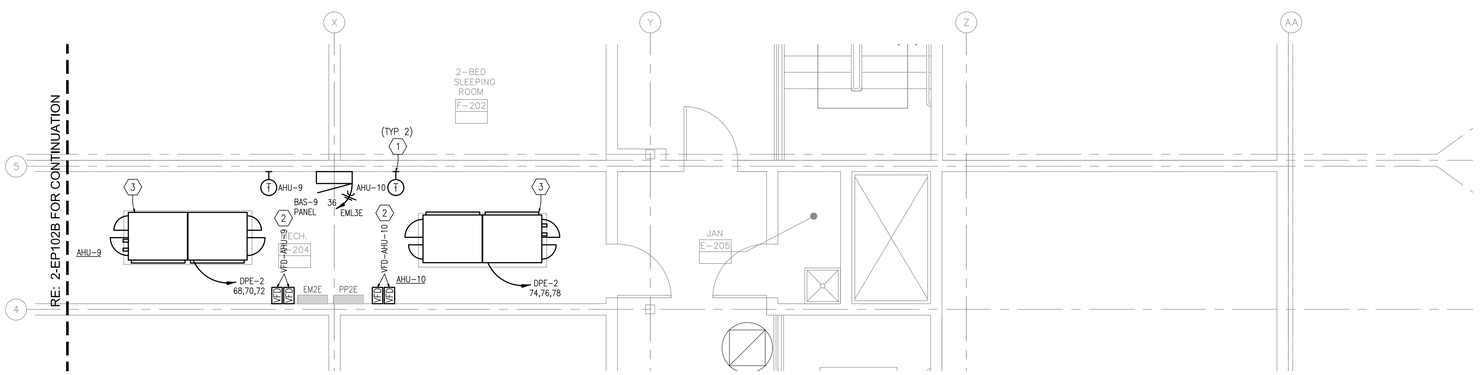
100 OF 111 SHEETS
MARCH 21, 2023



1 LEVEL 2 ELECTRICAL POWER NEW WORK PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 2 ELECTRICAL POWER NEW WORK PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 2 ELECTRICAL POWER NEW WORK PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE J-BOX AND 1/2" CONDUIT WITH PULL STRING ROUTED TO CONTROLLER. THERMOSTAT/SENSOR AND CONTROL WIRING BY CONTROLS CONTRACTOR. COORDINATE WORK WITH CONTROLS CONTRACTOR.
2. INSTALL VFD PROVIDED BY CONTRACTOR IN APPROXIMATE LOCATION SHOWN. MOUNT VFD ON WALL NEAR UNIT. ROUTE CONDUIT AND WIRING FROM AIR HANDLING UNIT THROUGH VFD AND TO DESIGNATED PANEL BOARD. RE: E604 FOR FEEDER REQUIREMENTS.
3. CONNECT CIRCUITRY TO DISCONNECT SWITCH PROVIDED WITH EQUIPMENT.

GENERAL NOTES:
1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.
2) RE: SHEETS E600 SERIES FOR PANEL SCHEDULES AND MISC. SCHEDULE.

STATE OF MISSOURI
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DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

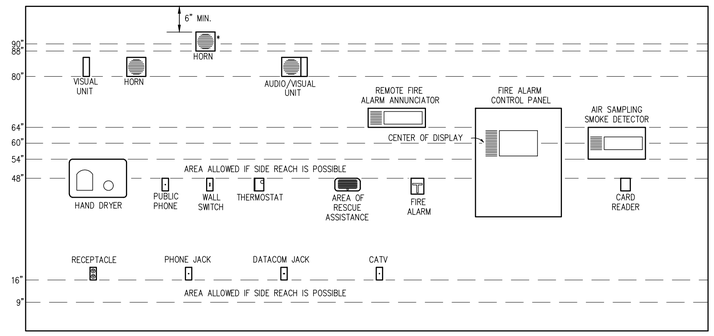
SHEET TITLE:

LEVEL 2
ELEC POWER
NEW WORK PLAN

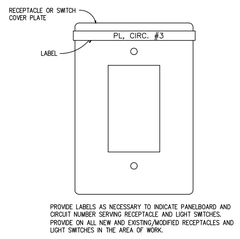
SHEET NUMBER:

EP102B

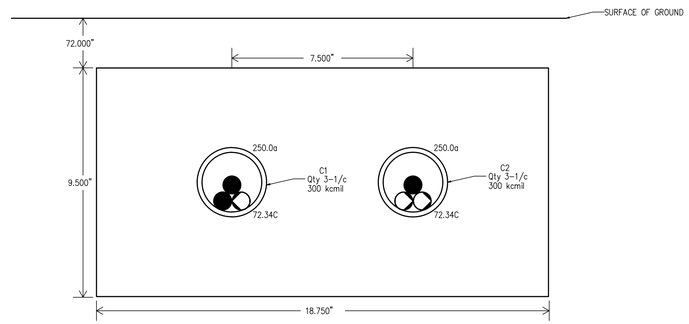
101 OF 111 SHEETS
MARCH 21, 2023



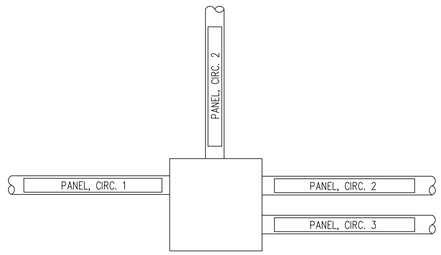
1 TYPICAL ELECTRICAL DEVICE MOUNTING HEIGHTS
SCALE: NONE



2 TYP. RECEPTACLE LABEL DETAIL
SCALE: NONE

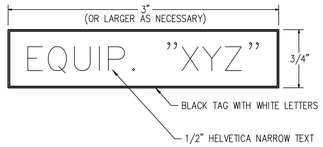


3 UNDERGROUND CHILLER CONDUIT DETAIL
SCALE: NONE



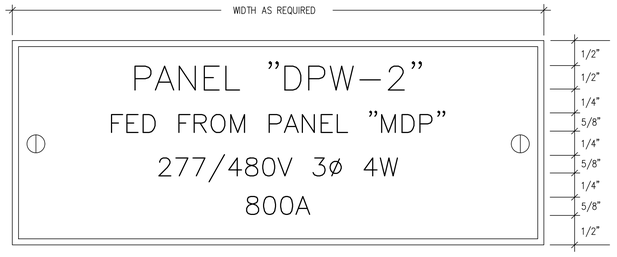
PROVIDE CONDUIT LABELING AT ALL LOCATIONS WHERE CONDUITS ENTER OR LEAVE JUNCTION BOXES, PULL BOXES, PANELBOARDS, DISCONNECTS, SWITCHES, WALLS, FLOORS, LIGHT FIXTURES, MECHANICAL EQUIPMENT, ETC., AND AT MAXIMUM 30' INTERVALS IN BETWEEN BOXES AND DEVICES. PROVIDE PANELBOARD NAME AND CIRCUIT NUMBERS CONTAINED WITHIN CONDUIT. LABELS SHALL BE WHITE WITH BLACK LETTERING, AND SHALL BE VISIBLE FROM FLOOR WHERE POSSIBLE.

4 TYPICAL CONDUIT LABELING DETAIL
SCALE: NONE



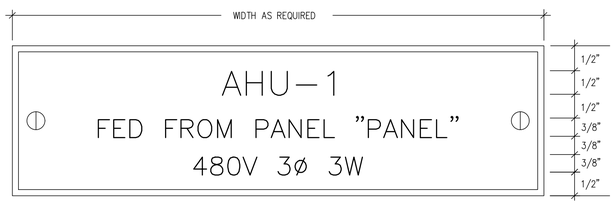
DETAIL NOTES
1) SEE SPECIFICATIONS FOR ADDITIONAL NAMEPLATE INFORMATION.
2) REWORD NAMEPLATE FOR FIELD CONDITIONS.
3) PROVIDE ENGRAVED NAMEPLATES ON ALL INDIVIDUAL BREAKERS ON MAIN AND DISTRIBUTION PANELS. NAMES SHALL DESCRIBE EQUIPMENT FED BY BREAKER.

5 TYP. BREAKER TAG DETAIL
SCALE: NONE



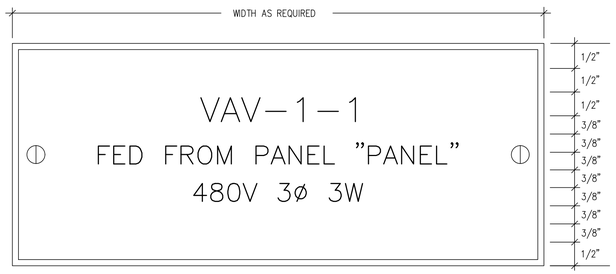
DETAIL NOTES
1) SEE SPECIFICATIONS FOR ADDITIONAL NAMEPLATE AND COLOR INFORMATION.
2) REWORD NAMEPLATE FOR FIELD CONDITIONS.
3) PROVIDE SIMILAR NAMEPLATE ON ALL NEW PANELBOARDS AND SWITCHBOARDS.

6 TYP. SUB-DISTRIBUTION CENTER AND BRANCH PANELBOARD NAMEPLATE DETAIL
SCALE: NONE



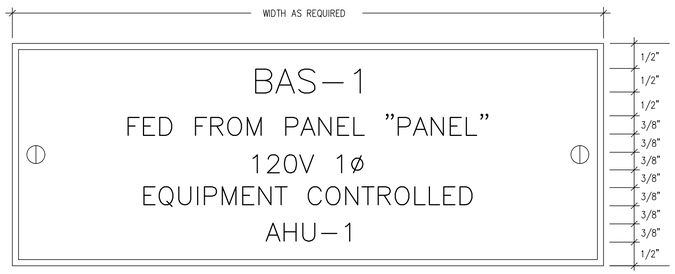
DETAIL NOTES
1) PROVIDE WHITE PLACARD WITH BLACK TEXT.
2) REWORD NAMEPLATE FOR FIELD CONDITIONS.
3) PROVIDE SIMILAR NAMEPLATE ON ALL NEW EQUIPMENT. RE: MISC. EQUIPMENT SCHEDULE ON E600 SERIES DRAWINGS.

7 TYP. MISC. EQUIPMENT NAMEPLATE DETAIL
SCALE: NONE



DETAIL NOTES
1) PROVIDE WHITE PLACARD WITH BLACK TEXT.
2) REWORD NAMEPLATE FOR FIELD CONDITIONS.
3) PROVIDE SIMILAR NAMEPLATE ON ALL NEW VAV BOXES. RE: MISC. EQUIPMENT SCHEDULE ON E600 SERIES DRAWINGS.

8 TYP. VAV BOX EQUIPMENT NAMEPLATE DETAIL
SCALE: NONE



DETAIL NOTES
1) PROVIDE WHITE PLACARD WITH BLACK TEXT.
2) REWORD NAMEPLATE FOR FIELD CONDITIONS.
3) PROVIDE SIMILAR NAMEPLATE ON ALL NEW BAS PANELS. RE: BA500 FOR LIST LIST OF NEW PANELS.

9 TYP. BAS PANEL NAMEPLATE DETAIL
SCALE: NONE

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CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:
ELECTRICAL DETAILS

SHEET NUMBER:
E501

102 OF 111 SHEETS
MARCH 21, 2023

PANELBOARD SCHEDULE: DPE SEC2 - EXISTING PANEL (NEW WORK)

PANELBOARD TYPE			MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
277/480 VOLTAGE	3 PHASE	4 WIRE	MAIN BREAKER	X TOP	SEE PLANS
800 AMP MAIN BUS			X MAIN LUGS	BOTTOM	FEEDER CABLE:
1 NEMA ENCLOSURE	200% RATED NEUTRAL		FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000 RMS SYM AMPS @	480 VOLTS		SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23 DATE	X COPPER BUSSING		SOLID NEUTRAL	FLUSH	MDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
43											12	M	2325				44
45	SPARE						60	3	20	3	12	M		2325		AHU-5	46
47											12	M			2325		48
49											12	M	2325				50
51	SPARE						60	3	20	3	12	M		2325		AHU-6	52
53											12	M			2325		54
55											12	M	2325				56
57	SPARE						60	3	20	3	12	M		2325		AHU-7	58
59											12	M			2325		60
61											12	M	2325				62
63	SPARE						60	3	20	3	12	M		2325		AHU-8	64
65											12	M			2325		66
67											12	M	2325				68
69	SPARE						60	3	20	3	12	M		2325		AHU-9	70
71											12	M			2325		72
73											12	LM	2325				74
75	SPARE						60	3	20	3	12	LM		2325		AHU-10	76
77											12	LM			2325		78
79																	80
81	SPARE						60	3								SPACE	82
83																	84
85											EXIST	P					86
87	SPACE								175	3	EXIST	P				PANEL PP1E	88
89											EXIST	P				(VIA TRANSFORMER)	90
		0	0	0									13950	13950	13950		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 13950	B – 13950	C – 13950
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 13950	B – 13950	C – 13950

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0	0	0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0	0	0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	6975	0	6975	8719	8719
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	34875	3800	38675	38675	38675
HEATING (NEC 220-15)	100%	0	0	0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0	0	0	0	0
WATER HEATER	100%	0	0	0	0	0
MISC.	100%	0	0	0	0	0
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		41850	3800	45650	47394	47394
SIZING LOAD		57 AMPS				

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

PANELBOARD SCHEDULE: DPW SEC1 - EXISTING PANEL (NEW WORK)

PANELBOARD TYPE			MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
277/480 VOLTAGE	3 PHASE	4 WIRE	MAIN BREAKER	X TOP	SEE PLANS
800 AMP MAIN BUS			X MAIN LUGS	BOTTOM	FEEDER CABLE:
1 NEMA ENCLOSURE	200% RATED NEUTRAL		FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000 RMS SYM AMPS @	480 VOLTS		SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23 DATE	X COPPER BUSSING		SOLID NEUTRAL	FLUSH	MDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
43		2325			M	12											44
45	AHU-2		2325		M	12	20	3	50	3						SPARE	46
47				2325	M	12											48
49		2325			M	12											50
51	AHU-3		2325		M	12	20	3	40	3						SPARE	52
53				2325	M	12											54
55		5800			LM	8											56
57	AHU-4		5800		LM	8	40	3	50	3						SPARE	58
59				5800	LM	8											60
61																	62
63	SPARE						30	3	60	3						SPARE	64
65																	66
67																	68
69	SPARE						35	3	60	3						SPARE	70
71																	72
73																	74
75	SPARE						35	3	100	3						SPARE	76
77																	78
79																	80
81	SPARE						50	3								SPACE	82
83																	84
85											EXIST	P					86
87	SPACE								175	3	EXIST	P				PANEL PP1W	88
89											EXIST	P				(VIA TRANSFORMER)	90
		10450	10450	10450													

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 10450	B – 10450	C – 10450
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 10450	B – 10450	C – 10450

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0	0	0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0	0	0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	17400	24000	41400	51750	51750
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	13950	17400	31350	31350	31350
HEATING (NEC 220-15)	100%	0	15840	15840	15840	19800
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0	0	0	0	0
WATER HEATER	100%	0	0	0	0	0
MISC.	100%	0	3000	3000	3000	3000
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		31350	60240	91590	101940	105900
SIZING LOAD		127 AMPS				

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

PANELBOARD SCHEDULE: DPW SEC 2 - EXISTING PANEL (NEW WORK)

PANELBOARD TYPE			MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
277/480 VOLTAGE	3 PHASE	4 WIRE	MAIN BREAKER	X TOP	SEE PLANS
800 AMP MAIN BUS			X MAIN LUGS	BOTTOM	FEEDER CABLE:
1 NEMA ENCLOSURE	200% RATED NEUTRAL		FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000 RMS SYM AMPS @	480 VOLTS		SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23 DATE	X COPPER BUSSING		SOLID NEUTRAL	FLUSH	MDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1		5800			M	8					EXIST	LM	8000				2
3	AHU-1		5800		M	8	40	3	50	3	EXIST	LM		8000		ELEVATOR SHUNT	4
5				5800	M	8					EXIST	LM			8000		6
7											EXIST	H	3000				8
9	SPARE						40	3	15	3	EXIST	H		3000		GARAGE HEATER	10
11											EXIST	H			3000		12
13																	14
15	SPARE						30	3								SPACE	16
17																	18
19																	20
21	SPARE						35	3	60	3						SPARE	22
23																	24
25																	26
27	SPARE						30	3	60	3						SPARE	28
29																	30
31																	32
33	SPARE						40	3								SPACE	34
35																	36
37																	38
39	SPACE															SPACE	40
41																	42
		5800	5800	5800									11000	11000	11000		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 16800	B – 16800	C – 16800
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 16800	B – 16800	C – 16800

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0		0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0		0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	24000		24000	30000	30000
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	17400		17400	17400	17400
HEATING (NEC 220-15)	100%	9000		9000	9000	11250
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0		0	0	0
WATER HEATER	100%	0		0	0	0
MISC.	100%	0		0	0	0
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		50400	0	50400	56400	58650
SIZING LOAD		71 AMPS				

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

PANELBOARD SCHEDULE: EM3E - EXISTING PANEL (NEW WORK)

PANELBOARD TYPE			MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
277/480 VOLTAGE	3 PHASE	4 WIRE	X 200A MAIN BREAKER	X TOP	SEE PLANS
225 AMP MAIN BUS			X MAIN LUGS	BOTTOM	FEEDER CABLE:
1 NEMA ENCLOSURE	200% RATED NEUTRAL		FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
VERIFY RMS SYM AMPS @	480 VOLTS		SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23 DATE	X COPPER BUSSING		SOLID NEUTRAL	FLUSH	PANEL EMDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1		3050			LM	12											2
3	AHU-14		3050		LM	12	15	3	50	3						SPARE	4
5				3050	LM	12											6
7									20	1		L				LTS GEN STORAGE 114	8
9	SPARE						80	3	20	1		L				LTS DORMITORY 117	10
11									20	1		L				LTS OFFICE AREA	12
13					P	EXIST			20	1		L				LTS RESTROOMS	14
15	PANEL EML3E				P	EXIST	50	3	20	1		L				LTS OUTSIDE	16
17	(VIA XFMR-EMTE2)				P	EXIST			20	1		L				LTS OUTSIDE	18
19									20	1		L				LTS FLOODS OUTSIDE	20
21	UNKNOWN LOAD						50	3	20	1						SPARE	22
23									20	1						SPARE	24
25									20	1						SPARE	26
27	UNKNOWN LOAD						80	3	20	1						SPARE	28
29									20	1						SPARE	30
31	SPARE						20	1	20	1						SPARE	32
33	SPARE						20	1	20	1						SPARE	34
35	SPARE						20	1	20	1						SPARE	36
37																	38
39	TVSS UNIT						60	3	15	3						UNKNOWN LOAD	40
41																	42
		3050	3050	3050									0	0	0		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 3050	B – 3050	C – 3050
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 3050	B – 3050	C – 3050

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0	0	0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0	0	0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	9150	0	9150	11438	11438
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	0	0	0	0	0
HEATING (NEC 220-15)	100%	0	0	0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0	0	0	0	0
WATER HEATER	100%	0	0	0	0	0
MISC.	100%	0	2500	2500	2500	2500
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		9150	2500	11650	13938	13938
SIZING LOAD		17 AMPS				

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

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KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:

ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

ELECTRICAL
SCHEDULES

SHEET NUMBER:

E601

103 OF 111 SHEETS
MARCH 21, 2023

PANELBOARD SCHEDULE: HVE - EXISTING PANEL (NEW WORK)

	PANELBOARD TYPE				MAIN FUSE		FEEDER ENTRANCE:		PANEL LOCATION:
277/480	VOLTAGE	3	PHASE	4	WIRE	X	225A MAIN BREAKER	X TOP	SEE PLANS
200	AMP MAIN BUS					X	MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE		200% RATED NEUTRAL				FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000	RMS SYM AMPS @	480	VOLTS				SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE	X	COPPER BUSSING				SOLID NEUTRAL	FLUSH	EMDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1		2000			H	EXIST					EXIST	WH	12000				2
3	CUH-1 HEATER		2000		H	EXIST	15	3	60	3	EXIST	WH		12000		HOT WATER HEATER 1	4
5				2000	H	EXIST					EXIST	WH			12000		6
7		**2100**			**LM**	**12**					EXIST	M	445				8
9	**AHU-11**		**2100**		**LM**	**12**	15	3	15	3	EXIST	M		445		EF-1	10
11				**2100**	**LM**	**12**					EXIST	M			445		12
13																	14
15	**SPARE**						60	3	35	3						**SPARE**	16
17																	18
19		**830**			**M**	**12**											20
21	**AHU-12**		**830**		**M**	**12**	15	3	20	3						**SPARE**	22
23				**830**	**M**	**12**											24
25																	26
27	**SPARE**						35	3	15	3						**SPARE**	28
29																	30
31																	32
33	TVSS						60	3	30	3						**SPARE**	34
35																	36
37	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	38
39	SPACE								20	1						UNKNOWN LOAD	40
41	SPACE															SPACE	42
44											EXIST	P					44
	SPACE								125	3	EXIST	P				PANEL PP3E	46
48											EXIST	P				(VIA XFMR-TE2)	48
		4930	4930	4930									12445	12445	12445		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 17375	B – 17375	C – 17375
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 17375	B – 17375	C – 17375

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0	0	0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0	0	0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	6300	0	6300	7875	7875
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	3825	900	4725	4725	4725
HEATING (NEC 220-15)	100%	6000	0	6000	6000	7500
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0	0	0	0	0
WATER HEATER	100%	36000	0	36000	36000	45000
MISC.	100%	0	0	0	0	0
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		52125	900	53025	54600	65100
SIZING LOAD		78 AMPS				

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

PANELBOARD SCHEDULE: HV1 SEC 1 - EXISTING PANEL (NEW WORK)

	PANELBOARD TYPE				MAIN FUSE		FEEDER ENTRANCE:		PANEL LOCATION:
277/480	VOLTAGE	3	PHASE	4	WIRE		MAIN BREAKER	X TOP	SEE PLANS
800	AMP MAIN BUS					X	MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE		200% RATED NEUTRAL				FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000	RMS SYM AMPS @	480	VOLTS				SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE	X	COPPER BUSSING				SOLID NEUTRAL	FLUSH	MDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1																	2
3	**SPARE**						60	3	15	3						**SPARE**	4
5																	6
7																	8
9	**SPARE**						60	3	15	3						**SPARE**	10
11																	12
13		**5815**			**M**	**8**											14
15	**HHWP 01**		**5815**		**M**	**8**	**40**	**3**	15	3						**SPARE**	16
17				**5815**	**M**	**8**											18
19		**5815**			**M**	**8**											20
21	**HHWP 02**		**5815**		**M**	**8**	**40**	**3**	15	3						**SPARE**	22
23				**5815**	**M**	**8**											24
25		**7475**			**LM**	**6**											26
27	**CHWP 01**		**7475**		**LM**	**6**	**50**	**3**	15	3						**SPARE**	28
29				**7475**	**LM**	**6**											30
31																	32
33	**SPARE**						15	3	15	3						**SPARE**	34
35																	36
37																	38
39	**SPARE**						15	3	15	3						**SPARE**	40
41																	42
43											EXIST	P					44
45	SPACE								175	3	EXIST	P				PANEL KP	46
47											EXIST	P				(VIA 112.5 KVA XFMR)	48
		19105	19105	19105									0	0	0		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 19105	B – 19105	C – 19105
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 19105	B – 19105	C – 19105

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0	0	0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0	0	0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	22425	0	22425	28031	28031
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	34890	0	34890	34890	34890
HEATING (NEC 220-15)	100%	0	0	0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0	0	0	0	0
WATER HEATER	100%	0	0	0	0	0
MISC.	100%	0	3840	3840	3840	3840
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		57315	3840	61155	66761	66761
SIZING LOAD		80 AMPS				

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

PANELBOARD SCHEDULE: PP3E SEC 2 - EXISTING PANEL (NEW WORK)

	PANELBOARD TYPE				MAIN FUSE		FEEDER ENTRANCE:		PANEL LOCATION:
120/208	VOLTAGE	3	PHASE	4	WIRE		MAIN BREAKER	X TOP	SEE PLANS
200	AMP MAIN BUS					X	MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE		200% RATED NEUTRAL				FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
10,000	RMS SYM AMPS @	480	VOLTS				SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE	X	COPPER BUSSING				SOLID NEUTRAL	FLUSH	PANEL HVE

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
43	BACK DOOR MOTOR						20	1	25	2						CUH-2	44
45	EXT REAR REC						20	1									46
47	FLOOR JACK 117						20	2			**12**	**M**			**300**		48
49									**15**	**3**	**12**	**M**	**300**			**AHU-13**	50
51	JAN 115						20	1			**12**	**M**		**300**			52
53	WATER SOFTENER						20	1	20	1						**MEZZANINE REC**	54
55	RCP-1						20	1	20	1						HK DORMITORY 112	56
57	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	58
59	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	60
61	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	62
63	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	64
65	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	66
67	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	68
69							20	1	20	1						UNKNOWN LOAD	70
71	TVSS UNIT						60	3	20	1						UNKNOWN LOAD	72
73							20	2								UNKNOWN LOAD	74
75	UNKNOWN LOAD						20	1									76
77	UNKNOWN LOAD						15	2	25	2						UNKNOWN LOAD	78
79																	80
81	UNKNOWN LOAD						20	2	30	2						UNKNOWN LOAD	82
83																	84
		0	0	0									300	300	300		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 300	B – 300	C – 300
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 300	B – 300	C – 300

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0		0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0		0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	0		0	0	0
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	900		900	900	900
HEATING (NEC 220-15)	100%	0		0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0		0	0	0
WATER HEATER	100%	0		0	0	0
MISC.	100%	0		0	0	0
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		900	0	900	900	900
SIZING LOAD		2 AMPS				

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

PANELBOARD SCHEDULE: HV1 SEC 2 - EXISTING PANEL (NEW WORK)

	PANELBOARD TYPE				MAIN FUSE		FEEDER ENTRANCE:		PANEL LOCATION:
277/480	VOLTAGE	3	PHASE	4	WIRE		MAIN BREAKER	X TOP	SEE PLANS
800	AMP MAIN BUS					X	MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE		200% RATED NEUTRAL				FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000	RMS SYM AMPS @	480	VOLTS				SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE	X	COPPER BUSSING				SOLID NEUTRAL	FLUSH	MDP

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
43																	44
45	**SPARE**						35	3	35	3						**SPARE**	46
47																	48
49																	50
51	**SPARE**						35	3	35	3						**SPARE**	52
53																	54
55																	56
57	**SPARE**						35	3	35	3						**SPARE**	58
59																	60
61					EXIST						EXIST						62
63	DISHWASHER				EXIST		30	3	60	3	EXIST					HVI 3	64
65					EXIST						EXIST						66
67					EXIST												68
69	BOOSTER HEATER				EXIST		90	3	20	3						**SPARE**	70
71					EXIST												72
73																	74
75	**SPARE**						15		15	3						**SPARE**	76
77																	78
79																	80
81	SPACE															SPACE	82
83																	84
		0	0	0									0	0	0		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 0	B – 0	C – 0
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 0	B – 0	C – 0

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0		0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0		0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	0		0	0	0
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	0		0	0	0
HEATING (NEC 220-15)	100%	0		0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0		0	0	0
WATER HEATER	100%	0		0	0	0
MISC.	100%	0		0	0	0
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		0	0	0	0	0
SIZING LOAD		0 AMPS				

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
NUMBER PE-2003016693
PROFESSIONAL ENGINEER
3-21-2023

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER
OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
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ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

ELECTRICAL
SCHEDULES

SHEET NUMBER:

E602

104 OF 111 SHEETS
MARCH 21, 2023

PANELBOARD SCHEDULE: KP SEC2 - EXISTING PANEL (NEW WORK)

	PANELBOARD TYPE				MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
120/208	VOLTAGE	3	PHASE	4	WIRE	MAIN BREAKER	X TOP	SEE PLANS
400	AMP MAIN BUS				X MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE		200% RATED NEUTRAL		FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
10,000	RMS SYM AMPS @		480 VOLTS		SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE		X COPPER BUSSING		SOLID NEUTRAL	FLUSH	PANEL HV1

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
43	MICROWAVE 51A					EXIST	20	1	30	2	EXIST					TOASTER 45A	44
45	MICROWAVE 51A					EXIST	20	1			EXIST						46
47	MIXER					EXIST	30	2	20	1	EXIST					PEELER 42A	48
49						EXIST			20	1	EXIST					UNKNOWN LOAD	50
51	UNKNOWN LOAD					EXIST	20	1	20	1	EXIST					PEELER 42A	52
53	FREEZE 7A					EXIST	20	1	20	1	EXIST					UNKNOWN LOAD	54
55	DUPLEX 12A,13A					EXIST	20	1	20	1	EXIST					OVERHEAD	56
57	CONTROL CIRCUIT					EXIST	20	1	20	1	EXIST					UNKNOWN LOAD	58
59	JACKET HEATER GEN					EXIST	30	1			EXIST						60
61	RECP - DOCK					EXIST	20	1	20	3	EXIST					FORKLIFT CHARGER	62
63	RECP - DOCK					EXIST	20	1			EXIST						64
65	DOCK HEATER					EXIST	20	1									66
67						EXIST			35	3						**SPARE**	68
69	TRASH COMP					EXIST	40	3									70
71						EXIST			30	1	EXIST					UNKNOWN LOAD	72
73	GARAGE DOOR					EXIST	20	1	20	1	EXIST					UNKNOWN LOAD	74
75	LIGHTS					EXIST	20	1	20	2	EXIST					UNKNOWN LOAD	76
77	LIGHTS					EXIST	30	1			EXIST						78
79	GFI IN COOLER					EXIST	20	1			EXIST						80
81	**BOILER (B-01)**		**1920**		**MI**	**12**	**20**	**1**	25	3	EXIST					UNIT D A/C	82
83	**BOILER (B-02)**			**1920**	**MI**	**12**	**20**	**1**			EXIST						84
		0	1920	1920									0	0	0		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 0	B – 1920	C – 1920
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 0	B – 1920	C – 1920

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0		0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0		0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	0		0	0	0
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	0		0	0	0
HEATING (NEC 220-15)	100%	0		0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0		0	0	0
WATER HEATER	100%	0		0	0	0
MISC.	100%	3840		3840	3840	3840
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		3840	0	3840	3840	3840
SIZING LOAD				11 AMPS		

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

PANELBOARD SCHEDULE: PP1W SEC2 - EXISTING PANEL (NEW WORK)

	PANELBOARD TYPE				MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
120/208	VOLTAGE	3	PHASE	4	WIRE	MAIN BREAKER	X TOP	SEE PLANS
400	AMP MAIN BUS				X MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE		200% RATED NEUTRAL		FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
65,000	RMS SYM AMPS @		480 VOLTS		SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE		X COPPER BUSSING		SOLID NEUTRAL	FLUSH	PANEL PP1W SEC 1

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
43	OUTLET N WALL RM 133						20	1	20	2						BEAUTY BARBER	44
45	OUTLET 208V RM 133						20	2									46
47	NORTH WALL								20	1						UNKNOWN LOAD	48
49	UNKNOWN LOAD						20	1								WASHER	50
51	OUTLET 208V RM 133						20	2	30	3						LAUNDRY	52
53	SOUTHWEST WALL															RM 132	54
55	HOT WATER BOILER						20	1									56
57	HOT WATER BOILER						20	1	30	3						WASHER-LAUNDRY	58
59	HOT WATER CIRC						20	1								(OFF)	60
61	ELECT RM 130 RECPT						20	1	20	1						GATE RELEASE	62
63	ACU						40	2	20	1						UNKNOWN LOAD	64
65	CONTROL ROOM								20	1						RECEPT HALL	66
67	EXHAUST FAN RM 108						20	1	20	1						CORRIDOR DAMPERS	68
69	RECPTS NEW OFFICE 123						20	1	20	1						OHD RM 194	70
71	UNKNOWN LOAD						30	1	20	1						EXHAUST FANS CELL	72
73	UNKNOWN LOAD						30	1	20	1						CABLE TV OUTLET	74
75	UNKNOWN LOAD						20	1	20	1						4 PLEX OUTLETS RM 102	76
77	UNKNOWN LOAD						20	1	30	1						SPACE	78
79	**BC-1**	**3420**			**H**	**8**	**35**	**2**	30	1						VISITATION EAST	80
81			**3420**		**H**	**8**			30	1						VISITATION EAST	82
83	**GLYCOL FEEDER**			**1000**	**MI**	**12**	**20**	**1**	**20**	**1**	**12**	**MI**			**1000**	**AHU-1 VAV BOXES**	84
		3420	3420	1000									0	0	1000		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 3420	B – 3420	C – 2000
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 3420	B – 3420	C – 2000

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0		0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0		0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	0		0	0	0
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	0		0	0	0
HEATING (NEC 220-15)	100%	0		0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0		0	0	0
WATER HEATER	100%	0		0	0	0
MISC.	100%	2000		2000	2000	2000
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		8840	0	8840	8840	10550
SIZING LOAD				29 AMPS		

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

PANELBOARD SCHEDULE: EX-MUA - EXISTING PANEL (NEW WORK)

	PANELBOARD TYPE				MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
277/480	VOLTAGE	3	PHASE	4	WIRE	MAIN BREAKER	X TOP	SEE PLANS
100	AMP MAIN BUS				X MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE		200% RATED NEUTRAL		FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
14,000	RMS SYM AMPS @		480 VOLTS		SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE		X COPPER BUSSING		SOLID NEUTRAL	FLUSH	FIELD VERIFY

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1					M	EXIST					**12**	**LM**	**4401**				2
3	EX-1				M	EXIST	15	3	15	3	**12**	**LM**		**4401**		**MUA-1**	4
5					M	EXIST					**12**	**LM**			**4401**		6
7					M	EXIST					**12**	**M**	**4401**				8
9	EX-2				M	EXIST	15	3	15	3	**12**	**M**		**4401**		**MUA-2**	10
11					M	EXIST					**12**	**M**			**4401**		12
13									20	1						UNKNOWN LOAD	14
15	UNKNOWN LOAD						15	3								SPACE	16
17																SPACE	18
19	SPACE															SPACE	20
21	SPACE															SPACE	22
23	SPACE															SPACE	24
25	SPACE															SPACE	26
27	SPACE															SPACE	28
29	SPACE															SPACE	30
		0	0	0									8802	8802	8802		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 8802	B – 8802	C – 8802
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 8802	B – 8802	C – 8802

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0		0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0		0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	13203		13203	16504	16504
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	13203		13203	13203	13203
HEATING (NEC 220-15)	100%	0		0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0		0	0	0
WATER HEATER	100%	0		0	0	0
MISC.	100%	0		0	0	0
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		26406	0	26406	29707	29707
SIZING LOAD				36 AMPS		

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

PANELBOARD SCHEDULE: PP1E SEC 3 - EXISTING PANEL (NEW WORK)

	PANELBOARD TYPE				MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
120/208	VOLTAGE	3	PHASE	4	WIRE	MAIN BREAKER	X TOP	SEE PLANS
250	AMP MAIN BUS				X MAIN LUGS	BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE		200% RATED NEUTRAL		FEED THRU LUGS	MOUNT:	SEE ONE-LINE DIAGRAM
10,000	RMS SYM AMPS @		480 VOLTS		SUB-FEED BREAKER	X SURFACE	SOURCE:
1/16/23	DATE		X COPPER BUSSING		SOLID NEUTRAL	FLUSH	PANEL PP1E

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1	RECPT-SLEEP NE				R	EXIST	20	1	20	1	EXIST	R				RECPT-BATHROOM	2
3	RECPT-SLEEP NE				R	EXIST	20	1	20	1	EXIST	R				RECEPT-BATHROOM	4
5	RECPT-SLEEP NE				R	EXIST	20	1	20	1	EXIST	R				CASE WORKER RM	6
7	DRYER				MI	EXIST	30	2	30	2	EXIST	MI				DRYER	8
9					MI	EXIST					EXIST	MI					10
11	EX-FAN BATHROOM				M	EXIST	20	1	20	1	EXIST	R				WASHER RECPT	12
13	FIRE DAMPERS				MI	EXIST	20	1	20	1	EXIST	R				WASHER RECPT	14
15	FIRE ALARM PANEL				MI	EXIST	20	1	20	1	EXIST	R				IRON BOARD ROOF	16
17	**AC-2 / ACC-2**		**1900**		**M**	**12**	**20**	**2**	20	1	EXIST	MI				UNKNOWN LOAD	18
19		**1900**			**M**	**12**			20	2	EXIST	R				ICE MACHINE	20
21	ICE MACHINE				R	EXIST	30	2			EXIST	R					22
23					R	EXIST			20	2	EXIST	R				ICE MACHINE	24
25	J PAY				EXIST		20	2			EXIST	R					26
27					EXIST				100	2						TEMP POWER	28
29	SPACE																30
		1900	0	1900									0	0	0		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A – 1900	B – 0	C – 1900
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A –	B –	C –
TOTAL CONNECTED VA/PH	A – 1900	B – 0	C – 1900

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0		0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0		0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	0		0	0	0
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	3800		3800	3800	3800
HEATING (NEC 220-15)	100%	0		0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0		0	0	0
WATER HEATER	100%	0		0	0	0
MISC.	100%	0		0	0	0
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		3800	0	3800	3800	3800
SIZING LOAD				11 AMPS		

NOTES:
1) ALL BOLD TEXT INDICATES NEW WORK.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
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DEPARTMENT OF CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION: DATE:
REVISION: DATE:
REVISION: DATE:

ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

ELECTRICAL SCHEDULES

SHEET NUMBER:

E603

105 OF 111 SHEETS
MARCH 21, 2023

PANELBOARD SCHEDULE: PP2W - EXISTING PANEL (NEW WORK)

	PANELBOARD TYPE				MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
120/208	VOLTAGE	3	PHASE	4	WIRE	MAIN BREAKER	X	TOP	SEE PLANS
125	AMP MAIN BUS				X	MAIN LUGS		BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE		200% RATED NEUTRAL			FEED THRU LUGS	MOUNT:		SEE ONE-LINE DIAGRAM
10,000	RMS SYM AMPS @	480	VOLTS			SUB-FEED BREAKER	X	SURFACE	SOURCE:
1/16/23	DATE	X	COPPER BUSSING			SOLID NEUTRAL		FLUSH	PANEL PP1W

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1	GFI OUTLET 224						20	1	20	1						EDF	2
3	GFI OUTLET 224						20	1	20	1						GFI 201, 204, 212	4
5	GFI OUTLET 223						20	1	20	1						DUPLEX 200, 203, 206	6
7	GFI OUTLET 223						20	1	20	1						DUPLEX 207 - 210	8
9	DUPLEX 221, 222						20	1	20	1						UNKNOWN LOAD	10
11	DUPLEX 216, 217						20	1	20	1						VENDING 222	12
13	DUPLEX 215, 218						20	1	20	1						UNKNOWN LOAD	14
15	DUPLEX 219,220						20	1	20	1						EMS MAIN CONTROL	16
17	ELEVATOR LIGHTS						20	1	20	1						WK STATION 212	18
19	OUTLET 228, 238						20	1	20	1						WK STATION 221	20
21	WK STATION 209						20	1	20	1						WK STATION 221	22
23	WK STATION 209						20	1	20	1						WK STATION 212	24
25	WK STATION 209						20	1	20	1						UNKNOWN LOAD	26
27	SPARE						20	1	20	1						UNKNOWN LOAD	28
29	SPACE								**20**	**1**	**12**	**MI**			**1000**	**AHU-4 VAV POWER**	30
		0	0	0									0	0	1000		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A - 0	B - 0	C - 1000
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A -	B -	C -
TOTAL CONNECTED VA/PH	A - 0	B - 0	C - 1000

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0		0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0		0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	0		0	0	0
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	0		0	0	0
HEATING (NEC 220-15)	100%	0		0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0		0	0	0
WATER HEATER	100%	0		0	0	0
MISC.	100%	1000		1000	1000	1000
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		1000	0	1000	1000	1000
SIZING LOAD		3 AMPS				

PANELBOARD SCHEDULE: EML3E - EXISTING PANEL (NEW WORK)

	PANELBOARD TYPE				MAIN FUSE	FEEDER ENTRANCE:	PANEL LOCATION:
120/208	VOLTAGE	3	PHASE	4	WIRE	X	100A MAIN BREAKER	X	TOP	SEE PLANS
125	AMP MAIN BUS				X	MAIN LUGS		BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE		200% RATED NEUTRAL			FEED THRU LUGS	MOUNT:		SEE ONE-LINE DIAGRAM
10,000	RMS SYM AMPS @	480	VOLTS			SUB-FEED BREAKER	X	SURFACE	SOURCE:
1/16/23	DATE	X	COPPER BUSSING			SOLID NEUTRAL		FLUSH	PANEL EMLV

SERVICE		VA LOAD A	VA LOAD B	VA LOAD C	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD A	VA LOAD B	VA LOAD C	SERVICE	
1	CONTROL CNTR 102 RECEPT						20	1	20	1						EQUIPMENT 103	2
3	CONTROL CNTR 102 RECEPT						20	1	20	1						EQUIPMENT 103	4
5	CONTROL CNTR 102 RECEPT						20	1	20	1						EQUIPMENT 103	6
7	CONTROL CNTR 102 RECEPT						20	1	20	1						DORMITORY 117 DESK	8
9	CONTROL CNTR 102 RECEPT						20	1	20	1						GEN STOR 114 DESK	10
11	CONTROL CNTR 102 RECEPT						20	1	20	1						FIRE ALARM PANEL	12
13	DORM 117 LIGHTS						20	1	20	1						REMOTE CONTROL SUITES	14
15	SMOKE DAMPERS						20	1	20	1						UNKNOWN LOAD	16
17	FREEZER						20	1	20	1						UNKNOWN LOAD	18
19	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	20
21	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	22
23	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	24
25	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	26
27	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	28
29	UNKNOWN LOAD						20	1	20	1						UNKNOWN LOAD	30
31	SPACE								**20**	**1**	**12**	**MI**	**500**			**BAS PANEL 7**	32
33	SPACE								**20**	**1**	**12**	**MI**		**1000**		**BAS PANEL 8 & 11**	34
35	SPACE								**20**	**1**	**12**	**MI**			**500**	**BAS PANEL 9**	36
37									**20**	**1**	**12**	**MI**	**500**			**BAS PANEL 10**	38
39	TVSS UNIT						60	3								SPACE	40
41																SPACE	42
		0	0	0									1000	1000	500		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	A - 1000	B - 1000	C - 500
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	A -	B -	C -
TOTAL CONNECTED VA/PH	A - 1000	B - 1000	C - 500

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0		0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0		0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	0		0	0	0
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	0		0	0	0
HEATING (NEC 220-15)	100%	0		0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0		0	0	0
WATER HEATER	100%	0		0	0	0
MISC.	100%	2500		2500	2500	2500
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		2500	0	2500	2500	2500
SIZING LOAD		7 AMPS				

PANELBOARD SCHEDULE: EMLV-2 - EXISTING PANEL (NEW WORK)

	PANELBOARD TYPE					FEEDER ENTRANCE:	PANEL LOCATION:
120/208	VOLTAGE	1	PHASE	X	100A MAIN BREAKER	X	TOP	ELECTRIC 140
100	AMP MAIN BUS	3	WIRE		MAIN LUGS		BOTTOM	FEEDER CABLE:
1	NEMA ENCLOSURE		200% NEUT.		FEED THRU LUGS	MOUNT:		SEE ONE-LINE DIAGRAM
10,000	RMS SYMMETRICAL AMPS @	240	VOLTS		SUB-FEED BREAKER	X	SURFACE	SOURCE:
1/16/23	DATE		COPPER BUSS		SOLID NEUTRAL		FLUSH	PANEL EMLV

POLE #	SERVICE	VA LOAD L1	VA LOAD L2	LOAD TYPE	WIRE SIZE	C.B. TRIP	C.B. POLE	C.B TRIP	C.B POLE	WIRE SIZE	LOAD TYPE	VA LOAD L1	VA LOAD L2	SERVICE	POLE #
1	UNKNOWN LOAD					30	2	20	1						2
3								20	1					HOT TOOL ROOM	4
5	UNKNOWN LOAD					20	1	20	1					PHONE SOOM	6
7	SHOP RECEPT					20	1	20	1					OFFICE RECEPT	8
9	SHOP RECEPT					20	1	20	1					JPAY SERVER	10
11	**AC-1/ACC-1**	**1900**		**M**	**12**	**20**	**2**	**20**	**1**	**12**	**MI**	**1000**		**BAS PANELS 1 & 4**	12
13		**1900**		**M**	**12**			**20**	**1**	**12**	**MI**		**1000**	**BAS PANELS 2 & 3**	14
15								**20**	**1**	**12**	**MI**	**1000**		**BAS PANELS 5 & 6**	16
17															18
19															20
		1900	1900									2000	1000		

CONNECTED VA/PH (LESS FEED THRU & SUB FEED)	L1 - 3900	L2 - 2900
CONNECTED VA/PH FROM FEED THRU AND SUB FEED	L1 -	L2 -
TOTAL CONNECTED VA/PH	L1 - 3900	L2 - 2900

LOAD TYPE	CODE DEMAND REQUIREMENTS	CONNECTED VA THIS PANEL	CONNECTED VA SUB PNLS	CONNECTED VA TOTAL	DEMAND VA	MIN. CODE VA (1.25 x CONT.)
LIGHTING (NEC 220-11)	100%	0		0	0	0
RECEPTACLES (NEC 220-13)	1st 10,000VA + 1/2 x REMAINING	0		0	0	0
LARGEST MOTOR (NEC 430-24)	1.25 x LARGEST FLA	0		0	0	0
REMAINING MOTORS (NEC 430-24)	100% REMAINING MOTORS	3800		3800	3800	3800
HEATING (NEC 220-15)	100%	0		0	0	0
KITCHEN EQUIPMENT (NEC 220-20)	VARIES (SEE CODE SECTION)	0		0	0	0
WATER HEATER	100%	0		0	0	0
MISC.	100%	3000		3000	3000	3000
SPARE	0 x CODE MIN.VA					0
TOTAL LOADS		6800		6800	6800	6800
SIZING LOAD		33 AMPS				

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GOVERNOR

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PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER
OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
DATE:
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REVISION:
DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

ELECTRICAL
SCHEDULES

SHEET NUMBER:

E604

106 OF 111 SHEETS
MARCH 21, 2023

MISCELLANEOUS EQUIPMENT SCHEDULE

LOCATION	UNIT	DESCRIPTION	SOURCE	HP	KW	VOLT	PHASE	FLA	MCA	MOP	CONDUIT SIZE	WIRE	BREAKER	DISC. SWITCH	DISC. FUSE	REMARKS
Level 1																
NORTH SIDE OUTSIDE BUILDING	MUA-1	MAKEUP AIR UNIT	EX-MUA	2		480	3	4.5	10.6	15	3/4"	(3) #12, (1) #12 G	15A/3P	PROVIDED WITH UNIT	N/A	
NORTH SIDE OUTSIDE BUILDING	MUA-2	MAKEUP AIR UNIT	EX-MUA	2		480	3	4.5	10.6	15	3/4"	(3) #12, (1) #12 G	15A/3P	PROVIDED WITH UNIT	N/A	
BOILER ROOM	HHWP 01	HOT WATER PUMP	HV1-1	15		460	3	21.0	26.3	40	3/4"	(3) #8, (1) #10 G	40A/3P	PROVIDED WITH VFD	N/A	
BOILER ROOM	HHWP 01	HOT WATER PUMP	HV1-1	15		460	3	21.0	26.3	40	3/4"	(3) #8, (1) #10 G	40A/3P	PROVIDED WITH VFD	N/A	
BOILER ROOM	CHWP 01	CHILLED WATER PUMP	HV1-1	20		460	3	27.0	33.8	50	1"	(3) #6, (1) #10 G	50A/3P	PROVIDED WITH VFD	N/A	
BOILER ROOM	B-1	BOILER	KP-2		1.92	120	1	16.0	20.0	20	3/4"	(2) #12, (1) #12 G	20A/1P	120V/1P, 20A	N/A	
BOILER ROOM	B-2	BOILER	KP-2		1.92	120	1	16.0	20.0	20	3/4"	(2) #12, (1) #12 G	20A/1P	120V/1P, 20A	N/A	
SOUTH SIDE OUTSIDE BUILDING	CH-01	CHILLER	MDP		257.1	460	3	322.7	423.0	600	3"	(2) SETS OF (3) 250 AWG, (1) #2 G	500A/3P	PROVIDED WITH UNIT	N/A	
CENTRAL CONTROL 102	BC-1	CEILING MOUNTED CASSETE UNIT	PP1W-2	1/4	4.7	208	1	26.3	32.9	35	3/4"	(2) #8, (1) #10 G	35A/2P	PROVIDED WITH UNIT	N/A	
TELEPHONE ROOM 138	AC-1	MINISPLIT DX UNIT	EMLV-2		3.8	208	1	14.6	18.3	20	3/4"	(2) #12, (1) #12 G	20A/2P	240V/3P, 30A	N/A	
ELECTRICAL CLOSE C-108	AC-2	MINISPLIT DX UNIT	PP1E-3		3.8	208	1	14.6	18.3	20	3/4"	(2) #12, (1) #12 G	20A/2P	240V/3P, 30A	N/A	
MEZZANINE	AHU-11	AIR HANDLING UNIT	HVE	5		480	3	6.2	7.7	15	3/4"	(3) #12, (1) #12 G	15A/3P	PROVIDED WITH UNIT	N/A	
MEZZANINE	AHU-12	AIR HANDLING UNIT	HVE	1 1/2		480	3	2.4	3.0	15	3/4"	(3) #12, (1) #12 G	15A/3P	PROVIDED WITH UNIT	N/A	
MEZZANINE	AHU-13	AIR HANDLING UNIT	PP3E-2	1		208	3	3.7	4.6	15	3/4"	(3) #12, (1) #12 G	15A/3P	PROVIDED WITH UNIT	N/A	
MEZZANINE	AHU-14	AIR HANDLING UNIT	EM3E	7 1/2		480	3	7.7	11.6	20	3/4"	(3) #12, (1) #12 G	15A/3P	PROVIDED WITH UNIT	N/A	
Level 2																
MECHANICAL ROOM 231	AHU-1	AIR HANDLING UNIT	DPW-2	15		480	3	17.8	22.3	40	1"	(3) #8, (1) #10 G	40A/3P	PROVIDED WITH UNIT	N/A	
MECHANICAL ROOM 229	AHU-2	AIR HANDLING UNIT	DPW-1	(2) 3		480	3	8.4	9.5	20	3/4"	(3) #12, (1) #12 G	20A/3P	PROVIDED WITH VFD	N/A	
MECHANICAL ROOM 229	AHU-3	AIR HANDLING UNIT	DPW-1	(2) 3		480	3	8.4	9.5	20	3/4"	(3) #12, (1) #12 G	20A/3P	PROVIDED WITH VFD	N/A	
MECHANICAL ROOM 230	AHU-4	AIR HANDLING UNIT	DPW-1	15		480	3	18.0	22.5	40	1"	(3) #8, (1) #10 G	40A/3P	PROVIDED WITH VFD	N/A	
MECHANICAL ROOM A-204	AHU-5	AIR HANDLING UNIT	DPE-2	(2) 3		480	3	8.4	9.5	20	3/4"	(3) #12, (1) #12 G	20A/3P	PROVIDED WITH VFD	N/A	
MECHANICAL ROOM A-204	AHU-6	AIR HANDLING UNIT	DPE-2	(2) 3		480	3	8.4	9.5	20	3/4"	(3) #12, (1) #12 G	20A/3P	PROVIDED WITH VFD	N/A	
MECHANICAL ROOM D-204	AHU-7	AIR HANDLING UNIT	DPE-2	(2) 3		480	3	8.4	9.5	20	3/4"	(3) #12, (1) #12 G	20A/3P	PROVIDED WITH VFD	N/A	
MECHANICAL ROOM D-204	AHU-8	AIR HANDLING UNIT	DPE-2	(2) 3		480	3	8.4	9.5	20	3/4"	(3) #12, (1) #12 G	20A/3P	PROVIDED WITH VFD	N/A	
MECHANICAL ROOM E-204	AHU-9	AIR HANDLING UNIT	DPE-2	(2) 3		480	3	8.4	9.5	20	3/4"	(3) #12, (1) #12 G	20A/3P	PROVIDED WITH VFD	N/A	
MECHANICAL ROOM E-204	AHU-10	AIR HANDLING UNIT	DPE-2	(2) 3		480	3	8.4	9.5	20	3/4"	(3) #12, (1) #12 G	20A/3P	PROVIDED WITH VFD	N/A	

SCHEDULE NOTES:

1) IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE REQUIRED OVERCURRENT PROTECTION WITH THE MANUFACTURER. PROVIDE BREAKER, DISCONNECT SWITCH, CONDUIT AND WIRE SIZING PER THE MANUFACTURER'S RECOMMENDATION.
2) LOADS SHOWN ARE ENGINEER'S ESTIMATES ONLY BASED ON BASIS OF DESIGN EQUIPMENT. COORDINATE EXACT REQUIREMENTS WITH EQUIPMENT SUPPLIED.
3) SOME CONDUCTORS ARE SHOWN OVERSIZED TO ACCOUNT FOR VOLTAGE DROP. IF RE-SIZING FOR ALTERNATE EQUIPMENT, CONTRACTOR SHALL CONTACT ENGINEER FOR PROPER SIZE REQUIRED TO ACCOUNT FOR VOLTAGE DROP.
4) CONTRACTOR SHALL PROVIDE DISCONNECTING MEANS FOR ALL EQUIPMENT IF NOT PROVIDED WITH EQUIPMENT. COORDINATE WITH MANUFACTURER FOR ALL EQUIPMENT SUPPLIED DISCONNECTING MEANS.
5) NOTIFY ENGINEER IF EQUIPMENT/WIRING REQUIREMENTS DIFFER FROM WHAT IS SHOWN ON THIS SCHEDULE. ALL CONDUIT, WIRING, OVERCURRENT PROTECTION, ETC. SHALL BE SIZED PER NEC REQUIREMENTS AT A MINIMUM.

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

STATE OF MISSOURI
CURTIS L. BRUNGARDT
3-21-2023
NUMBER PE-2003016693
PROFESSIONAL ENGINEER

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OFFICE OF ADMINISTRATION
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MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
CORRECTIONS

PROJECT TITLE:

HVAC & BAS UPGRADE

TRANSITION CENTER
OF KANSAS CITY

651 MULBERRY STREET
KANSAS CITY, MISSOURI

PROJECT # C1904-01
SITE # 7027
FACILITY # 9327027001

REVISION:
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DATE:
ISSUE DATE: 03/21/2023

CAD DWG FILE:
DRAWN BY: RJR
CHECKED BY: MRB
DESIGNED BY: MRB

SHEET TITLE:

ELECTRICAL
SCHEDULES

SHEET NUMBER:

E605

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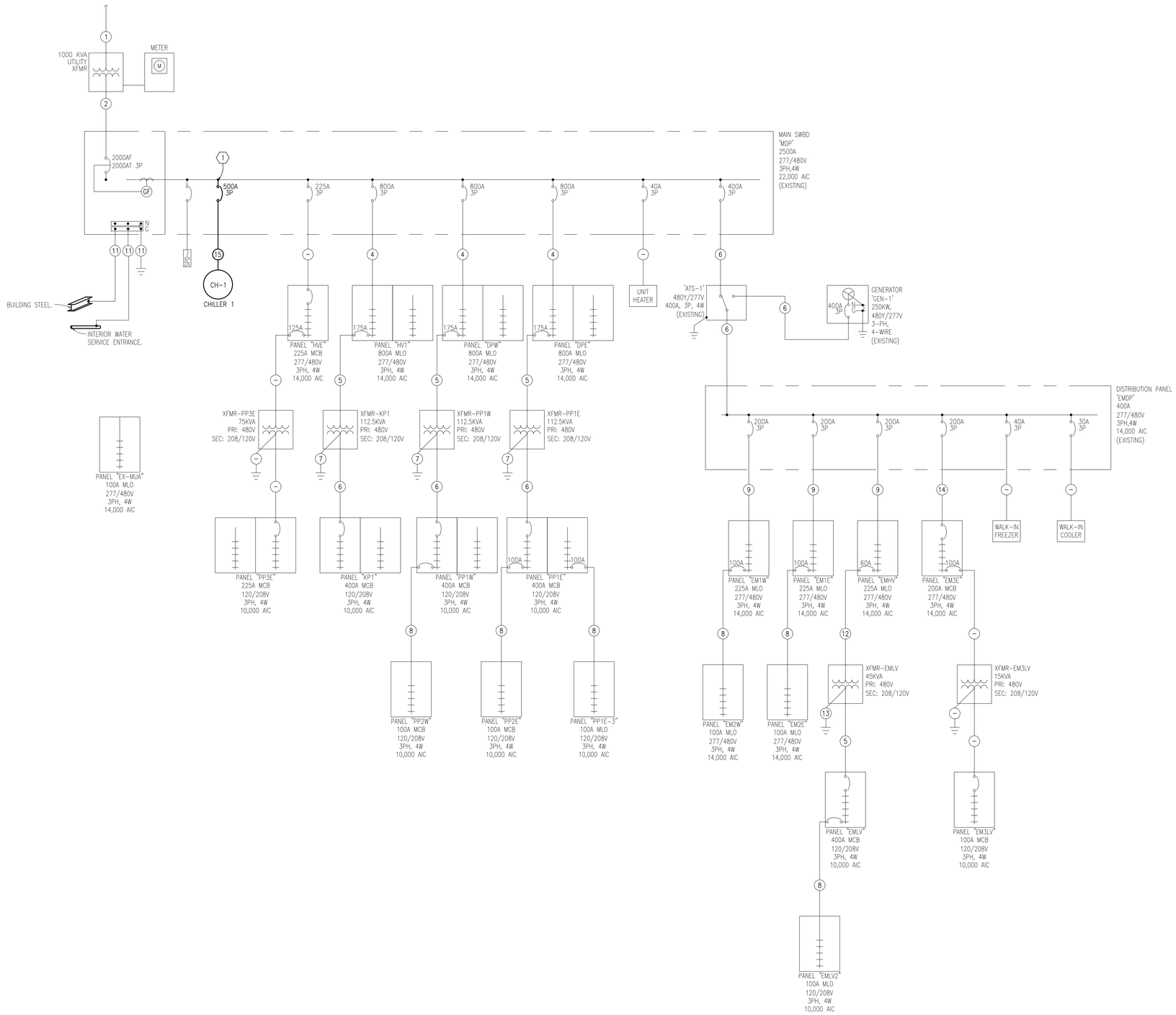
MARCH 21, 2023



1 ELECTRICAL ONE-LINE DIAGRAM
NO SCALE

PLAN NOTES:

1. PROVIDE NEW 500A BREAKER IN EXISTING PANELBOARD.

WIRING LEGEND:

1. 4" PVC CONDUIT 36" BELOW FINISHED GRADE FOR UTILITY COMPANY PRIMARY CABLE.
2. (7) 4#500CU THWN, 3" PVC CONDUIT
3. (2) 3" PVC CONDUITS
4. (3) 4#250CU THWN, 1#1/0CU GRD., 3" PVC CONDUIT
5. 4#2/0CU THWN, 2" CONDUIT
6. (2)4#3/0CU THWN, 1#3CU GRD, 2"C
7. #1/0CU GRD. TO BLDG. STEEL
8. 4#3CU THWN, 1-1/4" EMT
9. 4#3/0CU THWN, 1#6CU GRD.
10. 1-1/4" EMT CONDUIT
11. #3/0CU GRD. TO BLDG. STEEL AND H20 SERVICE #6CU GRD. TO DRIVEN GROUND ROD
12. 4#4CU THWN, 1" CONDUIT
13. #4CU GRD. TO BLDG. STEEL
14. 2" PVC CONDUIT

*EXISTING WIRING LEGEND SHOWN ABOVE FOR REFERENCE ONLY, NEW WIRING SHOWN BELOW

15. (2) SETS OF (3) 250 AWG, AND (1) #2 AWG GROUND IN 3" GRC.

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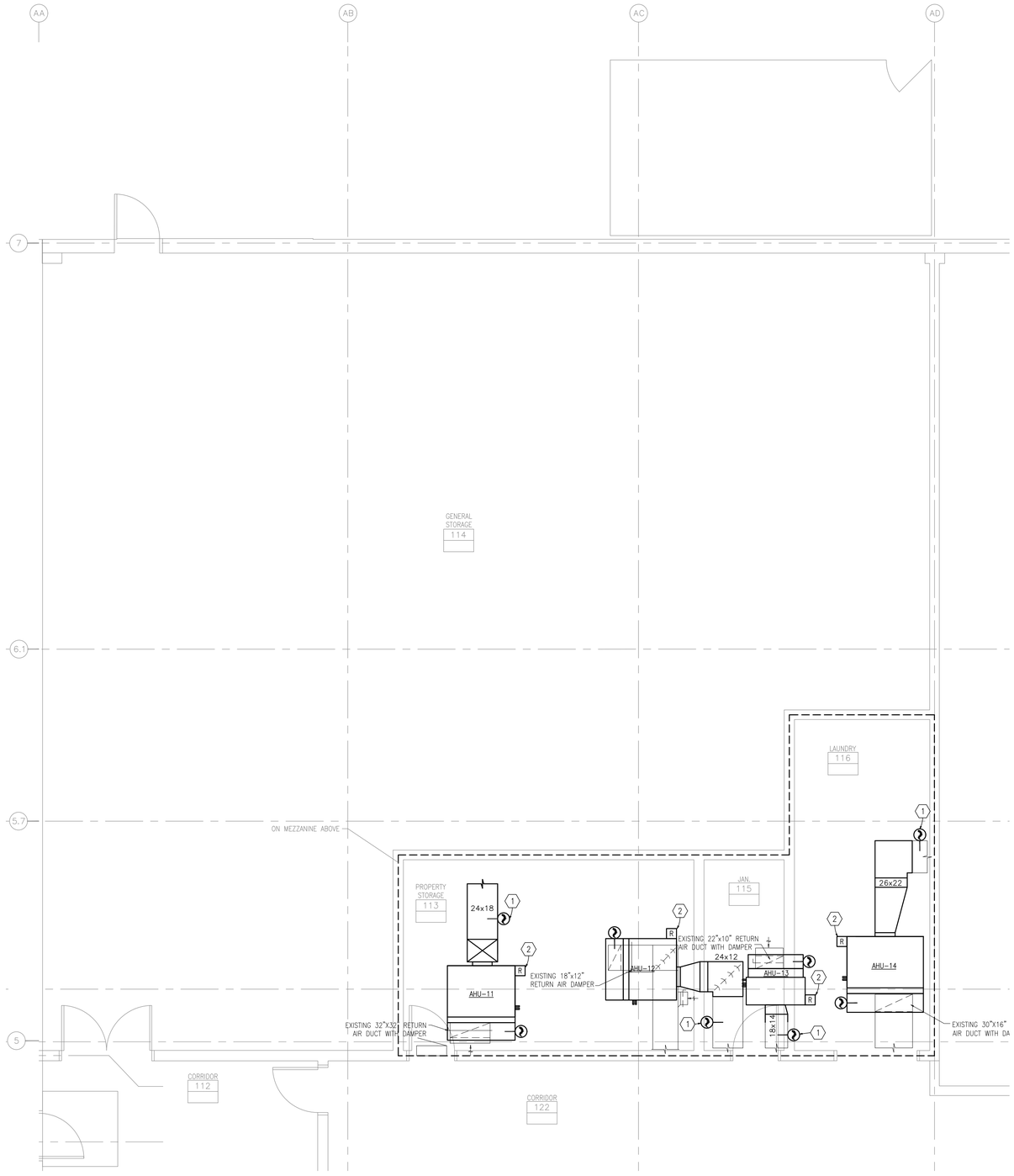
SHEET TITLE:

ELECTRICAL SCHEMATICS

SHEET NUMBER:

E701



1 LEVEL 1 FIRE ALARM NEW WORK PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE ADDRESSABLE TYPE SMOKE DETECTORS IN SUPPLY/RETURN DUCTWORK AS INDICATED. PROVIDE CONDUIT AND WIRING AS NECESSARY TO ALLOW FOR A COMPLETE SYSTEM. COORDINATE LOCATION OF DETECTORS WITH MECHANICAL CONTRACTOR.
2. PROVIDE CONTROL RELAY MODULE WITHIN 3FT OF UNIT SAFETY CIRCUIT TO PROVIDE HVAC UNIT SHUTDOWN. PROVIDE ALL NECESSARY POWER SUPPLIES, WIRING, CONDUIT, PROGRAMMING, ETC. ALLOWING FOR A COMPLETE AND OPERABLE SYSTEM.

GENERAL NOTES:

1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.

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SHEET TITLE:

LEVEL 1
FIRE ALARM
NEW WORK PLAN

SHEET NUMBER:

FA101D

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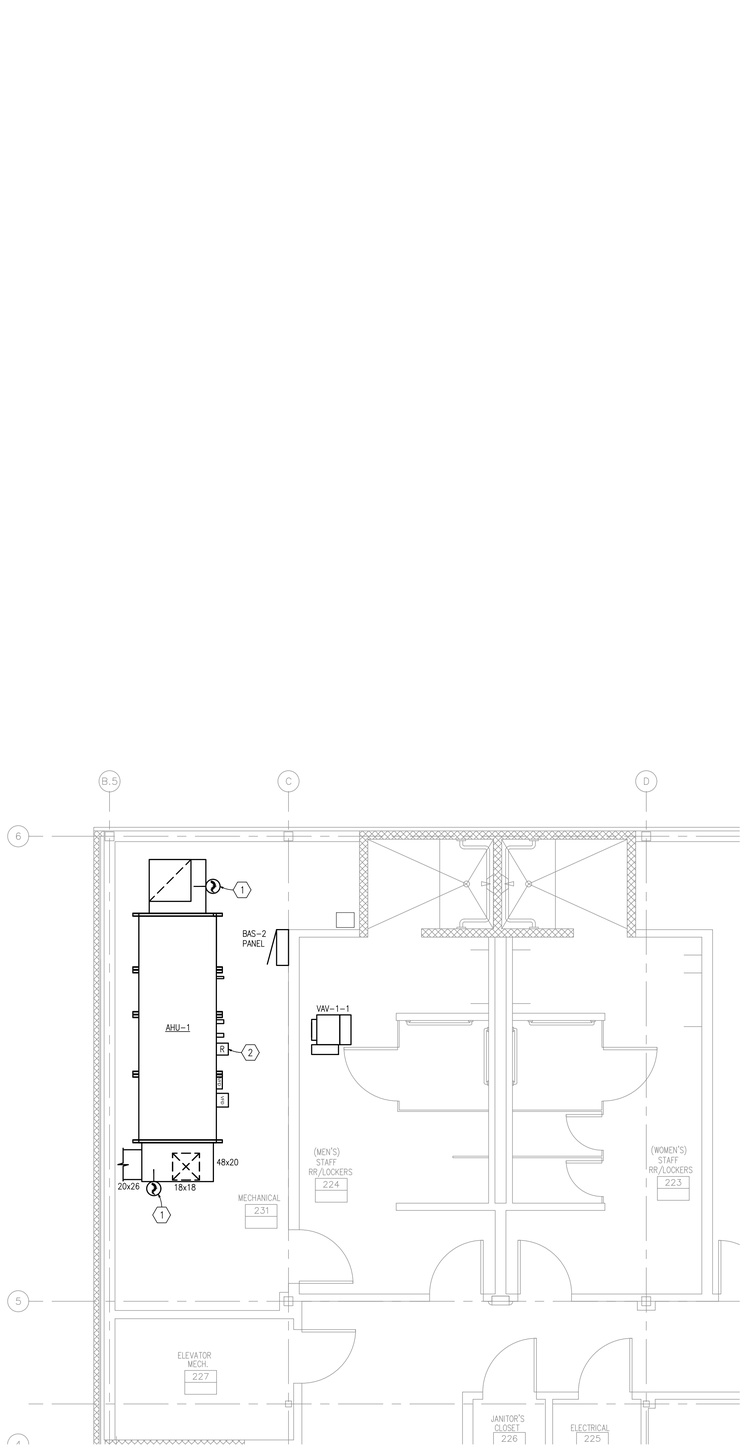
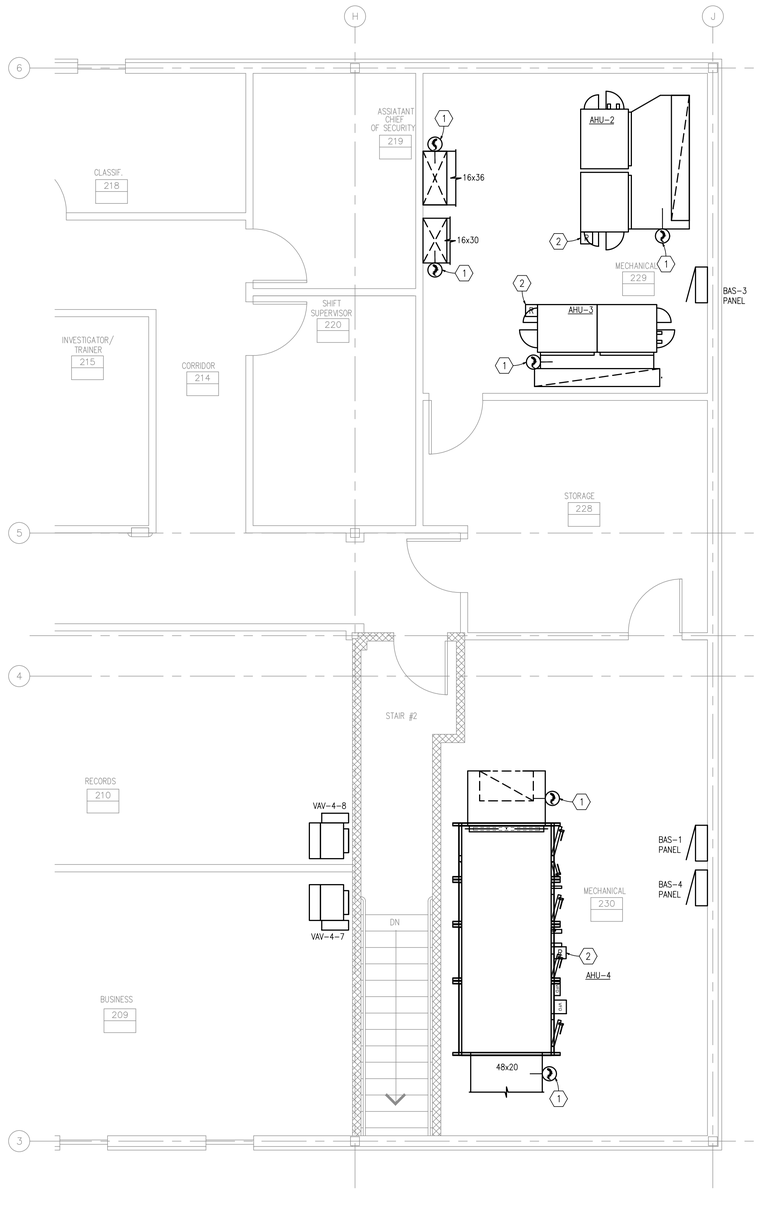
MARCH 21, 2023



1 LEVEL 2 FIRE ALARM NEW WORK PLAN

SCALE: 1/4" = 1'-0"



2 LEVEL 2 FIRE ALARM NEW WORK PLAN

SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE ADDRESSABLE TYPE SMOKE DETECTORS IN SUPPLY/RETURN DUCTWORK AS INDICATED. PROVIDE CONDUIT AND WIRING AS NECESSARY TO ALLOW FOR A COMPLETE SYSTEM. COORDINATE LOCATION OF DETECTORS WITH MECHANICAL CONTRACTOR.
2. PROVIDE CONTROL RELAY MODULE WITHIN 3FT OF UNIT SAFETY CIRCUIT TO PROVIDE HVAC UNIT SHUTDOWN. PROVIDE ALL NECESSARY POWER SUPPLIES, WIRING, CONDUIT, PROGRAMMING, ETC. ALLOWING FOR A COMPLETE AND OPERABLE SYSTEM.

GENERAL NOTES:

1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.

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SHEET TITLE:

LEVEL 2
FIRE ALARM
NEW WORK PLAN

SHEET NUMBER:

FA102A

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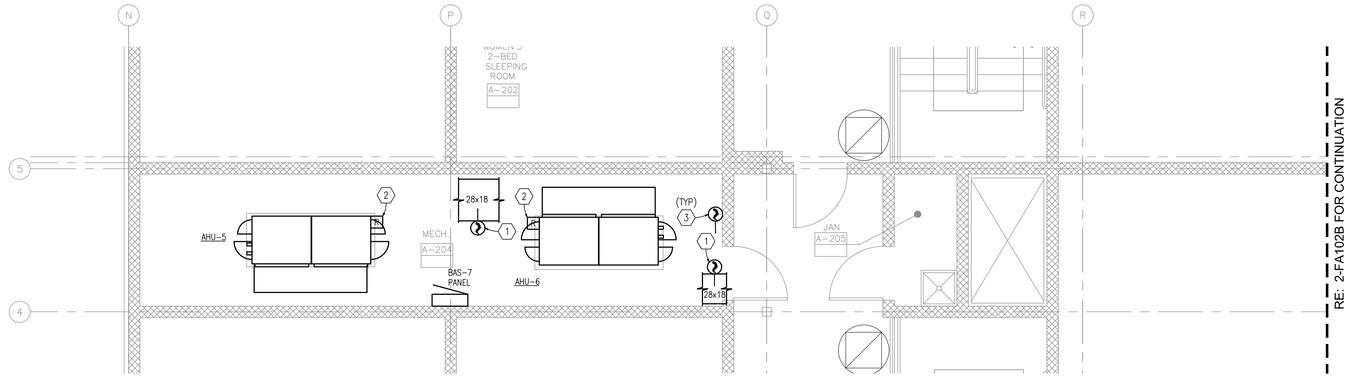
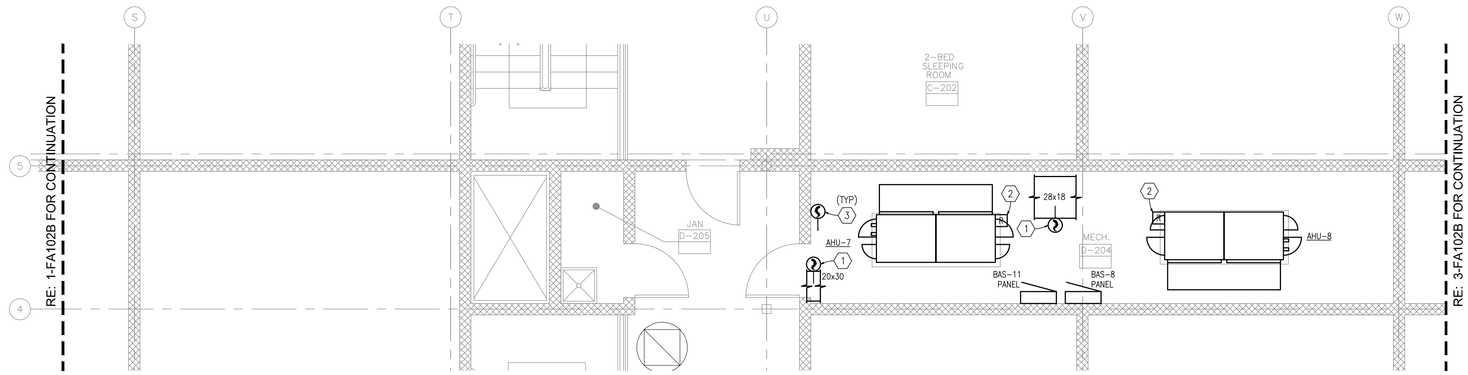
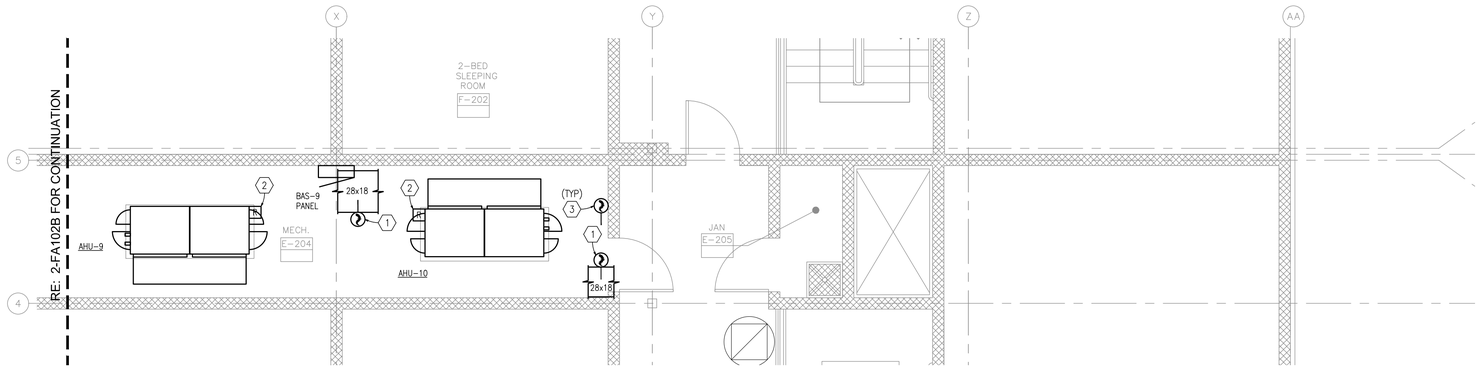
MARCH 21, 2023



1 LEVEL 2 FIRE ALARM NEW WORK PLAN
SCALE: 1/4" = 1'-0"



2 LEVEL 2 FIRE ALARM NEW WORK PLAN
SCALE: 1/4" = 1'-0"



3 LEVEL 2 FIRE ALARM NEW WORK PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. PROVIDE ADDRESSABLE TYPE SMOKE DETECTORS IN SUPPLY DUCTWORK AS INDICATED. PROVIDE CONDUIT AND WIRING AS NECESSARY TO ALLOW FOR A COMPLETE SYSTEM. COORDINATE LOCATION OF DETECTORS WITH MECHANICAL CONTRACTOR.
2. PROVIDE CONTROL RELAY MODULE WITHIN 3FT OF UNIT SAFETY CIRCUIT TO PROVIDE HVAC UNIT SHUTDOWN. PROVIDE ALL NECESSARY POWER SUPPLIES, WIRING, CONDUIT, PROGRAMMING, ETC. ALLOWING FOR A COMPLETE AND OPERABLE SYSTEM.
3. PROVIDE ADDRESSABLE TYPE SMOKE DETECTORS IN RETURN AIR PATHWAY ABOVE DOOR AS INDICATED. PROVIDE CONDUIT AND WIRING AS NECESSARY TO ALLOW FOR A COMPLETE SYSTEM. FIELD VERIFY PATHWAY LOCATION AND COORDINATE LOCATION OF DETECTORS WITH MECHANICAL CONTRACTOR.

GENERAL NOTES:
1) RE: SHEET E001 FOR SYMBOLS, & NOTATIONS.

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SHEET TITLE:

LEVEL 2
FIRE ALARM
NEW WORK PLAN

SHEET NUMBER:

FA102B

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MARCH 21, 2023